

# **Lower Kuskokwim River Inseason Subsistence Salmon Catch Monitoring, 2006**

**Final Report for Study FIS 06-306  
USFWS Office of Subsistence Management  
Fisheries Information Services Division**

**by**

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**and**

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**September 2007**

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**Alaska Department of Fish and Game**

**Divisions of Sport Fish and Commercial Fisheries**



## Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

| Weights and measures (metric)         |                    | General                  |                                  | Measures (fisheries)             |                         |
|---------------------------------------|--------------------|--------------------------|----------------------------------|----------------------------------|-------------------------|
| centimeter                            | cm                 | Alaska Administrative    |                                  | fork length                      | FL                      |
| deciliter                             | dL                 | Code                     | AAC                              | mideye-to-fork                   | MEF                     |
| gram                                  | g                  | all commonly accepted    |                                  | mideye-to-tail-fork              | METF                    |
| hectare                               | ha                 | abbreviations            | e.g., Mr., Mrs.,<br>AM, PM, etc. | standard length                  | SL                      |
| kilogram                              | kg                 |                          |                                  | total length                     | TL                      |
| kilometer                             | km                 | all commonly accepted    |                                  |                                  |                         |
| liter                                 | L                  | professional titles      | e.g., Dr., Ph.D.,<br>R.N., etc.  | <b>Mathematics, statistics</b>   |                         |
| meter                                 | m                  |                          |                                  | <i>all standard mathematical</i> |                         |
| milliliter                            | mL                 | at                       | @                                | <i>signs, symbols and</i>        |                         |
| millimeter                            | mm                 | compass directions:      |                                  | <i>abbreviations</i>             |                         |
|                                       |                    | east                     | E                                | alternate hypothesis             | H <sub>A</sub>          |
|                                       |                    | north                    | N                                | base of natural logarithm        | <i>e</i>                |
|                                       |                    | south                    | S                                | catch per unit effort            | CPUE                    |
|                                       |                    | west                     | W                                | coefficient of variation         | CV                      |
|                                       |                    | copyright                | ©                                | common test statistics           | (F, t, $\chi^2$ , etc.) |
|                                       |                    | corporate suffixes:      |                                  | confidence interval              | CI                      |
|                                       |                    | Company                  | Co.                              | correlation coefficient          |                         |
|                                       |                    | Corporation              | Corp.                            | (multiple)                       | R                       |
|                                       |                    | Incorporated             | Inc.                             | correlation coefficient          |                         |
|                                       |                    | Limited                  | Ltd.                             | (simple)                         | r                       |
|                                       |                    | District of Columbia     | D.C.                             | covariance                       | cov                     |
|                                       |                    | et alii (and others)     | et al.                           | degree (angular)                 | °                       |
|                                       |                    | et cetera (and so forth) | etc.                             | degrees of freedom               | df                      |
|                                       |                    | exempli gratia           |                                  | expected value                   | <i>E</i>                |
|                                       |                    | (for example)            | e.g.                             | greater than                     | >                       |
|                                       |                    | Federal Information      |                                  | greater than or equal to         | ≥                       |
|                                       |                    | Code                     | FIC                              | harvest per unit effort          | HPUE                    |
|                                       |                    | id est (that is)         | i.e.                             | less than                        | <                       |
|                                       |                    | latitude or longitude    | lat. or long.                    | less than or equal to            | ≤                       |
|                                       |                    | monetary symbols         |                                  | logarithm (natural)              | ln                      |
|                                       |                    | (U.S.)                   | \$, ¢                            | logarithm (base 10)              | log                     |
|                                       |                    | months (tables and       |                                  | logarithm (specify base)         | log <sub>2</sub> , etc. |
|                                       |                    | figures): first three    |                                  | minute (angular)                 | '                       |
|                                       |                    | letters                  | Jan,...,Dec                      | not significant                  | NS                      |
|                                       |                    | registered trademark     | ®                                | null hypothesis                  | H <sub>0</sub>          |
|                                       |                    | trademark                | ™                                | percent                          | %                       |
|                                       |                    | United States            |                                  | probability                      | P                       |
|                                       |                    | (adjective)              | U.S.                             | probability of a type I error    |                         |
|                                       |                    | United States of         |                                  | (rejection of the null           |                         |
|                                       |                    | America (noun)           | USA                              | hypothesis when true)            | α                       |
|                                       |                    | U.S.C.                   | United States                    | probability of a type II error   |                         |
|                                       |                    |                          | Code                             | (acceptance of the null          |                         |
|                                       |                    | U.S. state               | use two-letter                   | hypothesis when false)           | β                       |
|                                       |                    |                          | abbreviations                    | second (angular)                 | "                       |
|                                       |                    |                          | (e.g., AK, WA)                   | standard deviation               | SD                      |
|                                       |                    |                          |                                  | standard error                   | SE                      |
|                                       |                    |                          |                                  | variance                         |                         |
|                                       |                    |                          |                                  | population                       | Var                     |
|                                       |                    |                          |                                  | sample                           | var                     |
| <b>Weights and measures (English)</b> |                    |                          |                                  |                                  |                         |
| cubic feet per second                 | ft <sup>3</sup> /s |                          |                                  |                                  |                         |
| foot                                  | ft                 |                          |                                  |                                  |                         |
| gallon                                | gal                |                          |                                  |                                  |                         |
| inch                                  | in                 |                          |                                  |                                  |                         |
| mile                                  | mi                 |                          |                                  |                                  |                         |
| nautical mile                         | nmi                |                          |                                  |                                  |                         |
| ounce                                 | oz                 |                          |                                  |                                  |                         |
| pound                                 | lb                 |                          |                                  |                                  |                         |
| quart                                 | qt                 |                          |                                  |                                  |                         |
| yard                                  | yd                 |                          |                                  |                                  |                         |
| <b>Time and temperature</b>           |                    |                          |                                  |                                  |                         |
| day                                   | d                  |                          |                                  |                                  |                         |
| degrees Celsius                       | °C                 |                          |                                  |                                  |                         |
| degrees Fahrenheit                    | °F                 |                          |                                  |                                  |                         |
| degrees kelvin                        | K                  |                          |                                  |                                  |                         |
| hour                                  | h                  |                          |                                  |                                  |                         |
| minute                                | min                |                          |                                  |                                  |                         |
| second                                | s                  |                          |                                  |                                  |                         |
| <b>Physics and chemistry</b>          |                    |                          |                                  |                                  |                         |
| all atomic symbols                    |                    |                          |                                  |                                  |                         |
| alternating current                   | AC                 |                          |                                  |                                  |                         |
| ampere                                | A                  |                          |                                  |                                  |                         |
| calorie                               | cal                |                          |                                  |                                  |                         |
| direct current                        | DC                 |                          |                                  |                                  |                         |
| hertz                                 | Hz                 |                          |                                  |                                  |                         |
| horsepower                            | hp                 |                          |                                  |                                  |                         |
| hydrogen ion activity                 | pH                 |                          |                                  |                                  |                         |
| (negative log of)                     |                    |                          |                                  |                                  |                         |
| parts per million                     | ppm                |                          |                                  |                                  |                         |
| parts per thousand                    | ppt,<br>‰          |                          |                                  |                                  |                         |
| volts                                 | V                  |                          |                                  |                                  |                         |
| watts                                 | W                  |                          |                                  |                                  |                         |

***FISHERY MANAGEMENT REPORT NO. 07-50***

**LOWER KUSKOKWIM RIVER INSEASON SUBSISTENCE  
SALMON CATCH MONITORING, 2006**

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## ABSTRACT

Through a collaborative effort with the Alaska Department of Fish and Game (ADF&G) the Orutsararmiut Native Council (ONC) conducted inseason subsistence salmon surveys addressing qualitative assessment of run timing and abundance at selected fish camps and in communities of fishers in the lower Kuskokwim River during the summer of 2006. The project ran for 7 weeks starting June 1 to July 15. Information collected from these surveys was provided to fishery managers on a weekly basis. Information collected from this project provided fishery managers with timely inseason information on relative strength by species. The inseason subsistence catch monitoring project provided additional information to evaluate salmon run strength by indicating the relative success of some subsistence fishers in achieving their harvest goals. Additionally, this project provided a venue for local user input into the evaluation of salmon abundance and corresponding management strategies. The ONC inseason subsistence monitoring program, initiated in 2001, increased the quality and consistency of information obtained from subsistence fishers. Improvements to project operations since 2001 has increased the number and frequency of fishing family interviews, thereby increasing the credibility of the salmon catch information. Comparisons of inseason subsistence catch information can now be made between weeks within a given year and between years. Inseason subsistence catch information has also been used in combination with other information to evaluate the management actions taken.

Key words: Bethel, Chinook, *Oncorhynchus tshawytscha*, sockeye, *O. nerka*, chum, *O. keta*, coho, *O. kisutch*, salmon, Kuskokwim River, Orutsararmiut Native Council, subsistence, Kuskokwim River Salmon Management Working Group.

## INTRODUCTION

The Kuskokwim River drains an area of approximately 50,000 square miles, 11% of the total area of Alaska (Brown 1983). Each year adult salmon return to the river and support subsistence, commercial, and sport fisheries. The Kuskokwim River subsistence salmon fishery is one of the largest and most important in the state (ADF&G 2005). From June through August, the daily activities of many Kuskokwim River households revolve around harvesting, processing, and preserving salmon for subsistence use. The use of family fish camps has been, and remains an important part of Kuskokwim River subsistence activities. Alaska Department of Fish and Game (ADF&G), Division of Subsistence (SD) studies in the region indicate that, on average, subsistence harvested wild fish constitute as much as 85% by weight of the total fish and wildlife harvested in Kuskokwim River communities; and salmon constitute as much as 53% of the total annual harvest (Coffing 1991). The harvest of salmon for subsistence in some Kuskokwim River communities may be as high as 650 lbs per capita (Coffing 1991). The average total utilization of Kuskokwim River salmon from 1996–2005 was 77,046 fish (Appendix A1–A4). The recent 10-year (1996–2005) average subsistence harvest includes 73,547 Chinook salmon *Oncorhynchus tshawytscha*, 56,767 chum salmon *O. keta*, 39,124 sockeye salmon *O. nerka* and 32,432 coho salmon *O. kisutch* (Krauthoefer and Caylor *In prep*). By comparison, the same 10-year average annual commercial harvest consists of 4,777 Chinook, 56,279 chum, 17,572 sockeye, and 270,021 coho salmon (Linderman et al. *In prep*).

More than 2,000 households in the Kuskokwim Area annually harvest salmon for subsistence use, and many households not directly involved in catching salmon assist family and friends with cutting, drying, smoking, and associated preservation activities (salting, canning, and freezing). The majority (75%) of Kuskokwim Area households are situated within the Kuskokwim River drainage (Fall et al. 2006). Bethel is the largest community in the region, consisting of approximately 1,739 households. In 2005, the postseason survey conducted by ADF&G SD estimated that residents of Bethel accounted for 33% of the Kuskokwim Area subsistence salmon

harvests and 33% of all subsistence caught Chinook salmon. In 2005, ADF&G SD also estimated that 60,956 Chinook salmon were harvested by residents of lower Kuskokwim River villages, or 87% of the total Kuskokwim River Chinook salmon subsistence harvest (Fall et al. *In prep*).

Alaska Statute 16.05.258. *Subsistence use and allocation of fish and game* establishes a subsistence use priority for reasonable harvest opportunity consistent with sustained yield management. Consistent with State statute, the Alaska Board of Fisheries (BOF) has made a finding of levels of Kuskokwim salmon that are customary and traditionally taken or used for subsistence (5 AAC 01.286). For the Kuskokwim River drainage the BOF found the following amounts of fish are reasonably necessary for subsistence uses: 1) 64,500–83,000 Chinook salmon, 2) 39,500–75,500 chum salmon, 3) 27,500–39,500 sockeye salmon, and 4) 24,500–35,000 coho salmon. ADF&G SD conducts annual postseason household fishing surveys in most of the Kuskokwim Area communities in order to estimate subsistence salmon harvest levels (Fall et al. *In prep*). Postseason Kuskokwim River household surveys indicate salmon harvested in 2005 fell within amounts necessary for subsistence ranges for all species (Figures 1 through 4).

The Alaska National Interest Lands Conservation Act of 1980 established that rural subsistence users have a priority over other users to take wildlife on Federal public lands where recognized customary and traditional use patterns exist (16 U.S.C.A. 3114). On October 1, 1999, the Secretaries of Interior and Agriculture published regulations to expand Federal Management of subsistence fisheries to Alaskan rivers and lakes and limited marine waters within and adjacent to Federal public lands. Federal subsistence fishing regulations are adopted by the Federal Subsistence Board (FSB).

Based on annual postseason subsistence survey estimates, Kuskokwim Area subsistence salmon fisheries consistently rank as one of the largest in the State of Alaska (Fall et al. 2006; Fall et al. *In prep*). State and Federal lawmakers have recognized the use and dependence by residents of the area on this resource and established subsistence use as a priority over other uses of the resource. In order to maintain the resource, State regulations and policies have been established to provide for sustained yield management. Kuskokwim Area commercial fishing regulations since 1985 have limited gillnet mesh size to a maximum of 6 inches and, in 1987, the directed Chinook salmon commercial fishery was discontinued (Linderman et al. *In prep*).

In September 2000, citing guidelines established in the Sustainable Salmon Fisheries Policy (5 AAC 39.222), the BOF classified the Kuskokwim River Chinook and chum salmon stocks as yield concerns. This determination was based on the inability to maintain expected yields above the stock's escapement needs since 1998, despite specific management actions taken, and anticipated low adult salmon returns in 2001 (Burkey et al. 2000). Based on the yield concern classification, the BOF adopted the Kuskokwim River Salmon Rebuilding Management Plan (5 AAC 07.365) in January 2001 and amended in January 2004 (Bergstrom and Whitmore 2004). The FSB supported this action plan through Special Action in the 2001 season and more recently through an Interim Memorandum of Agreement. This management plan provides guidelines for the rebuilding and management of the Kuskokwim River salmon fishery that will result in the sustained yield of salmon stocks large enough to meet escapement goals, provide fishers with a reasonable opportunity to harvest subsistence salmon, and to provide for fisheries other than subsistence.

The Kuskokwim River Salmon Management Working Group (Working Group) was formed in 1988 by the BOF in response to requests from stakeholders in the Kuskokwim River drainage who wanted to take a more active role in the management of salmon fishery resources (Mundy 1995). Since then, the Working Group has become increasingly active in the preseason, inseason, and postseason management of the Kuskokwim River drainage subsistence, commercial, and sport salmon fisheries. In 2001, the Working Group modified its by-laws in order to more effectively address the needs of the Federal Subsistence Management Program by including members of the Coordinating Fisheries Committee of the Yukon-Kuskokwim Delta and Western Interior Regional Advisory Councils (RAC) (Whitmore and Martz 2005). The Working Group further modified their by-laws in 2005 to include representation from communities at the headwaters of the drainage which had not previously been represented on the Working Group (Shelden and Linderman 2007). The Working Group now serves as a public forum for State and Federal fisheries managers to meet with local users of the salmon resource to review run assessment information and reach a consensus on how to proceed with management of Kuskokwim River salmon fisheries. The Working Group typically meets beginning in March or April each calendar year; has intensive and frequent meetings during June, July, and August; and has a wrap-up session in September or October. Working Group meetings provide a forum for area fishers, user representatives, community representatives, RAC representatives, Fish and Game Advisory Committee members, and State and Federal managers to come together and discuss issues relevant to sustained yield fishery management and fishery resource use. Working Group meetings provide a venue for the inseason subsistence catch monitoring project to present its findings to fishery managers and Working Group members.

## **OUTLOOK AND MANAGEMENT STRATEGIES**

Preseason information provided to fishers regarding the fishery outlook and management strategies affected how they planned and scheduled their fishing activities. In 2006, ADF&G expected the Chinook and chum salmon runs to be similar to the 2005 salmon runs. In 2005, Chinook and chum salmon run sizes were large enough to provide for adequate escapements and subsistence harvests throughout most of the drainage. Salmon runs during the 2005 season were expected to be large enough to achieve escapement goals and amounts necessary for subsistence with a harvestable surplus available for fisheries other than subsistence. It was anticipated that a coho salmon directed commercial fishery would occur from late July through August.

For the past two decades, a system has been in place to monitor salmon run timing and run strength by comparison of current year information to historic information. This system includes, but is not limited to, the evaluation of Bethel test fishery (BTF) project catch rates, commercial harvest catch rates, weir passage, sonar passage, and aerial surveys indices of salmon abundance. Evaluation of inseason subsistence harvest information, collected ad hoc, has always been a component of this process.

In 2001, the inseason subsistence fishery monitoring program was initiated to obtain more consistent qualitative subsistence harvest information in the Kuskokwim Area (Whitmore et al. 2004). The monitoring program is a result of a cooperative effort between Tribal, State, and Federal agencies funded through the United States Fish and Wildlife Service (USFWS), Office of Subsistence Management (OSM). The program has strengthened the role that subsistence catch monitoring information plays in achieving management priorities such as meeting escapement goals, or providing fishers with an avenue to inform fishery managers on how their subsistence salmon harvests are progressing. In the Bethel area, the Orutsararmiut Native

Council (ONC), a local tribal organization, conducts the cooperative project and employs technicians who survey subsistence fishers inseason and summarize and report their findings to ADF&G, USFWS, and the Working Group on a weekly basis.

## **FISHERY MANAGEMENT**

The Kuskokwim River salmon fishery was managed according to the Kuskokwim River Salmon Rebuilding Management Plan (Rebuilding Plan). The purpose of the Rebuilding Plan is to provide guidelines for rebuilding and management of the Kuskokwim River fishery that will result in the sustained yield of salmon stocks large enough to meet the escapement goals, amounts necessary for subsistence, and for fisheries other than subsistence (5 AAC 07.365). The Rebuilding Plan provides direction for establishing a subsistence fishing schedule allowing salmon net and fish wheel fisheries to be open for 4 consecutive days per week in June and July as established by emergency order. The schedule is implemented in a step wise progression up the river consistent with salmon run timing and may be altered based on run strength to achieve escapement goals. Once escapement goals are assured for Chinook and chum salmon, subsistence fishing can be allowed 7 days per week. The goal of the windowed subsistence fishing schedule is to spread the subsistence harvest of Chinook and chum salmon out across the run by providing blocks of time when fish pass through the lower river without any fishing pressure.

In 2006, the Kuskokwim River subsistence fishing schedule was in effect from June 4 through June 13. During this time subsistence fishing with gillnets with a mesh size greater than 4 inches and fish wheels was prohibited 3 days per week from Sunday through Tuesday. The first day closed to subsistence salmon fishing was June 4 in all waters downstream of Bogus Creek. On June 11, the schedule was expanded to all waters downstream of Chuathbaluk, and on June 16, the schedule was discontinued prior to becoming effective for the entire Kuskokwim River drainage. Some non-salmon tributaries in the lower and middle Kuskokwim River drainage were not affected by this schedule nor were waters outside of the Kuskokwim River drainage. Therefore, there were 6 days when subsistence salmon fishing within the Kuskokwim River was closed downstream of Bogus Creek and 3 days when subsistence fishing within the Kuskokwim River was closed between Bogus Creek and Chuathbaluk. In 2006, the subsistence fishing schedule was not implemented upstream of Chuathbaluk.

The Rebuilding Plan provides further direction to provide for a commercial salmon fishery if it is determined that salmon abundance is in excess of that required to achieve escapement goals and that adequate opportunity is provided for fishers to achieve amounts necessary for subsistence use. A commercially harvestable surplus of chum, sockeye, and Chinook salmon was identified in 2006, and a commercial fishery was implemented in District 1 on June 26, 2006 (Figures 5 and 6). The commercial chum and sockeye directed fishery was discontinued following the second subdistrict opening on 28 June based on lack of processor airlift capacity and a weak chum salmon market. From August 1 through August 30, a coho directed commercial fishery was prosecuted in the District 1. In 2006, 17 subdistrict and 2 full district commercial fishing periods occurred between June 26 and August 30 (Table 1).

During commercial openings, waters of the commercial fishing district or subdistrict open to commercial fishing are closed to subsistence salmon fishing activity. Subsistence fishing closures associated with commercial fishing periods lasted from 6 hours before to 3 hours after commercial openings. In 2006, commercial fishing activities in the Kuskokwim River resulted

in 120 hours of subsistence salmon fishing closures within Subdistrict 1-A and the adjacent buffer area, 135 hours of subsistence salmon fishing closures in Subdistrict 1-B and the adjacent buffer area, and 30 hours when all of District 1 was closed to subsistence salmon fishing (Table 1).

This report summarizes results from inseason subsistence harvest surveys conducted by ONC in the summer of 2006 with subsistence fishers in the Bethel area of the lower Kuskokwim River (FIS 06-306). This report represents a final annual report for project FIS 06-306 funded by USFWS OSM. Project 06-306 is a continuation of project FIS 05-307 (operated in 2005), project FIS 04-353 (operated in 2004) and FIS 01-132 (operated from 2001 through 2003) (Martz and Whitmore 2005).

## **OBJECTIVES**

Objectives for project FIS 06-306, Bethel area inseason subsistence salmon catch monitoring data collection include:

1. Characterize salmon run timing and relative abundance in May, June, and July through weekly interviews with Bethel Area subsistence salmon fishers.
2. Characterize fishing activity and gear usage through weekly interviews with Bethel Area subsistence salmon fishers in May, June, and July.
3. Build management capacity by providing local input into the management process for the salmon subsistence fishery in May, June, and July through the presentation of weekly summaries of interviews with Bethel Area subsistence salmon fishers at Kuskokwim River Salmon Management Working Group meetings
4. Build local capacity by providing cross training to an ONC technician in other ADF&G and USFWS projects for up to 2 weeks.

## **METHODS**

In consultation with ADF&G staff, ONC hired a fishery technician to: 1) conduct weekly interviews with subsistence fishers along the mainstem Kuskokwim River, 2) summarize those data for Working Group meetings and 3) assist another ONC technician with the cooperative agreement project 06-106 between ADF&G and ONC in the collection of biological data from Chinook salmon taken in the subsistence fishery to characterize the age, sex, and length (ASL) composition of the subsistence harvest by gear type. The ONC technician conducted inseason subsistence surveys and collected Chinook salmon biological data in the Lower Kuskokwim River area between Oscarville and the mouth of the Kwethluk River (Figure 7).

## **INTERVIEWS**

The Lower Kuskokwim River subsistence fishery catch monitoring project relies on voluntary participation of local subsistence fishers. Participants are allowed to remain anonymous and most have participated since 2001 when the project began. Most are life-long residents of the Kuskokwim Area and represent some of the most experienced and knowledgeable fishers in the Bethel area. Most participants are of Alaska Native descent with a long tradition of practicing subsistence as a way of life. The amount of experience in the fishery by those interviewed ranges from 10 to 50 years each. The technician employed by ONC to conduct the interviews has approximately 23 years of subsistence fishing experience in the Kuskokwim River.

Nearly all participants are interviewed at seasonal fishing locations (fish camps) that have been maintained across generations in the areas of Gweek River, Church Slough, Steamboat Slough, Straight Slough, Old Bethel Airport, Oscarville Slough, Napaskiak Slough, the mainstem Kuskokwim River and Bethel (Figure 7). A list of approximately 54 interview participants (developed and maintained since 2001) from previous years formed the initial list for 2006. The fishery technicians interviewed these 54 families along with opportunistic encounters with fishers at the Bethel boat ramp or in other areas within the city of Bethel, during which additional families wishing to participate were added. Generally, the subsistence fisher responsible for the majority of the subsistence salmon harvest was interviewed at each fish camp. This fisher usually represents a larger group of people participating in the harvest, processing and preserving of subsistence caught salmon. Based on the success in past years, the same family member of a fish camp is interviewed each week.

The interview format was developed in conjunction with staff from ADF&G, USFWS, and ONC. ADF&G staff took the lead in coordinating and finalizing the interview format and protocols (Appendix B1). Questions on the form included: family name, community of residence, date household began fishing, fish camp location, fishing area, season harvest goals by species, qualitative assessment of weekly fishing success, progress toward achieving harvest goals, gear types utilized, general comments about fishing conditions, opinion on run timing, fishing difficulties, whether subsistence harvest goals were met, and the date the family completed salmon fishing for each species. The questions were designed to: 1) provide information from interviews with individual subsistence fishing families to provide a qualitative assessment of subsistence fishing success, 2) determine timing of the harvest 3) determine if fishers were selectively harvesting specific salmon species using particular mesh sizes or harvest methods, 4) determine if there were factors other than fish abundance that may have affected the relative success of achieving their harvest goals, and 5) determine a general assessment of salmon run timing based on subsistence fishers' perspective. Fishers were specifically asked: "Compared with this time in a "Normal" year, how were your catch rates for salmon this week?" Their answers were categorized as 'Very Good', 'Normal', or 'Poor' and together were viewed as an index of relative abundance. In order to provide a general characterization of salmon run timing, subsistence fishers were additionally asked the question: "Does the salmon run appear to be running early, late, or normal (Appendix B1)?"

The 2006 project consisted of hiring and training one fisheries technician by the ONC project investigator in consultation with ADF&G project investigators to begin field season preparations on May 26 and subsistence catch monitoring interviews on June 1. This technician worked in partnership with the ONC technician hired for FIS 06-306 and has been employed by ONC since the project began in 2001. Each week the technicians would travel by skiff to 54 outlying fish camps in the lower Kuskokwim River between Oscarville and the mouth of the Kwethluk River contacting the same general fish camp occupants during the 6 years the project has been in operation (Figure 7). Bethel fishers were contacted at fish camp, home or by phone. The technician conducted interviews beginning Wednesday of every week starting June 1 through July 15 with subsistence fishers in Bethel and vicinity<sup>1</sup> fish camps. The technician asked questions in order to complete a two page survey instrument form (Appendix B1). Completed

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<sup>1</sup> The Bethel vicinity is defined as: those waters of the mainstem Kuskokwim River between Napaskiak and the lower end of Kuskokuak Slough, including Church Slough.

weekly reports summarizing answers to weekly questions were generally received by ADF&G staff the Monday following the interview week and were distributed to USFWS, RAC members, Working Group members, and the public at Working Group meetings (Appendix C1–C7). Collection of this information and distribution of the subsequent summaries provided a venue for local user input into the determination of salmon run abundance, run timing and corresponding management strategies.

Once interviews were discontinued for 2006, the fisheries technicians were cross trained with ADF&G staff to begin drafting the narrative, tables, figures, and appendices of this report and worked with crews inseason at the Kogruklu River weir and the Kalskag fish wheel tagging project. The ONC Natural Resource Director regularly attended Working Group meetings and provided oral summaries of the interviews.

## RESULTS

In 2006, ONC staff conducted inseason subsistence surveys from June 1 to July 15. Each week between 22 to 48 individual fishing families were interviewed regarding their subsistence fishing activities for the week. A total of 248 interviews were conducted in 2006 (Tables 2 and 3). Seven weekly summaries were prepared and presented at Working Group meetings (Appendix C1–C7).

The most intense fishing activity in the study area occurred during mid June through the first week of July, as this is the period of greatest Chinook salmon abundance. During this period, a total of 162 interviews were conducted and 30% to 90% of families interviewed each week reported fishing (Tables 2 and 3). Through mid June and the first week of July, 106 interviews had reports of people fishing. Out of these 106 interviews, 56% had reports of Chinook salmon fishing as ‘Very Good’, and 44% had reports of Chinook salmon fishing as being ‘Normal’. There were no reports of ‘Poor’ Chinook salmon fishing by interviewed fishing families. During the weeks ending June 17 and July 1, 130 interviews had reports of families fishing (Table 2). Chum salmon fishing was described as ‘Very Good’ in 74% of the 130 interviews while 26% of the 130 interviews had reports of fishing as ‘Normal’. There were no reports of ‘Poor’ chum salmon fishing by interviewed fishing families. In the 130 interviews reporting families fishing during the weeks ending June 17 and July 1, 38% described sockeye salmon fishing as ‘Very Good’, 54% of the interviews had reports that fishing for sockeye salmon was ‘Normal’, 8% of the interviews had reports that sockeye fishing was ‘Poor’ (Table 2).

From mid June through the first week of July, 162 fishing families interviewed reported using gillnets and 1 family reported using rod and reel. Families using only drift gillnet gear constituted 81% of interviews while those using only set gillnet gear accounted for 9% of interviewed fishers (Table 4). Of the families fishing from mid June through the first week of July, 9% reported using both drift and set gillnet gear. Approximately 1% of the families reported using rod and reel. Gillnets with mesh size greater than 6 inches are primarily utilized to target Chinook salmon and 74% of interviewed fishers used only gillnets of this mesh size from mid June through the first week of July. Nearly 12% of interviewed fishers used only gillnets with mesh sizes smaller than 6 inches while 13% reported using both larger and smaller mesh sizes during this period.

During the June 15 Working Group meeting, a decision was reached to suspend the subsistence fishing schedule and go to 7 days per week subsistence fishing beginning June 16 (Shelden and Linderman 2007). The June 10 inseason salmon catch monitoring report (Appendix C2) provided valuable perspectives that influenced this decision. For example, the June 10 report showed that 32% of the individual fishing families interviewed had described Chinook fishing as ‘Very Good’ and 68% as ‘Normal’ (Table 3). No fishing families reported fishing to be ‘Poor’ during that week.

Participation in the subsistence fishery by interviewed fishing families declined in July (Tables 2 and 3). In the first 3 weeks of July, 110 interviews were conducted. During the weeks ending July 1, 8, and 15, twenty seven interviewees reported fishing. During this period, fisher participation was 24% of families interviewed in the 3 weeks of July. Chinook salmon fishing was described as ‘Very Good’ by 11% of the 27 reporting fishers and ‘Normal’ by 89%. There were no reports of Chinook salmon fishing being ‘Poor’. Chum salmon fishing was described as ‘Very Good’ by 63% of the 27 reporting fishers and ‘Normal’ by 37%. There were no reports of chum salmon fishing being ‘Poor’. Of the 27 interviews reporting fishing during the first 3 weeks of July, 33% described sockeye fishing as ‘Very Good’, 67% described sockeye fishing as ‘Normal’ while no fishing families reported fishing as ‘Poor’ (Table 3). Of fishers interviewed in July, 82% used drift gillnets only, while 3% of those interviewed reported subsistence fishing with only set gillnets. No families reported using both drift and setnets during July. 15% of the families fishing reported using rod and reel. Approximately 41% of the interviewed fishers reported using gillnets with 6 inch or larger mesh size. Approximately 44% reported using 6 inch or smaller mesh (Table 4). No families reported using both larger and smaller mesh sizes for the 3 weeks in July.

In 2006, fishers were asked to compare the run timing of each species of subsistence caught salmon to what they considered “normal” for the majority of years they had fished. Answers to these questions by date and species are recorded in Table 5. In general, fishers felt that the Chinook run was a week to 10 days late and that the chum and sockeye runs were normal. Fishers attributed the late arrival of Chinook to late break-up of Kuskokwim River ice cover and persistent low temperatures in June. Later surveys record that fishers felt the Chinook run was “normal”. However, on further questioning, fishers specified that although the Chinook run had been late, the run had behaved normally; building, peaking, and declining in a predictable way, but had remained consistently 10 days late. Initial responses by fishers indicating early arrivals of chum and sockeye salmon were later retracted. Fishers later indicated that the run timing was in fact fairly typical for most years (Table 5).

## **DISCUSSION**

Information used to manage the Kuskokwim River fisheries includes: subsistence harvest reports, test fish project summaries, and reports of salmon abundance from weir, sonar, and aerial survey programs as salmon approach clear water tributary spawning grounds. The inseason catch monitoring interviews are important in providing some of the first formal information pertaining to salmon abundance and subsistence harvest. Based on this information, comparisons of inseason subsistence catch information can be made among weeks, within a year, and among years (Tables 2 through 5; Appendix E1–E2). If the majority of interviewed fishers rate fishing as ‘Very Good’ for a given species and week, this may indicate that a particular run

is performing well for that time. Likewise, if the majority of interviewed fishers rate subsistence fishing as being 'Poor', this may indicate a run is performing poorly for that time. Now that several years of catch monitoring reports have been collected, it is possible to compare responses among years. Used concurrently with Bethel test fish catch data, subsistence catch monitoring information can provide a general assessment on the abundance and timing of a particular run of salmon.

The majority of salmon harvested for subsistence uses in the Kuskokwim River are Chinook salmon (Figure 8). In 2006, the Bethel test fish index for Chinook salmon was the third highest on record; the indices for chum and sockeye were the second highest on record (Doug Bue, Commercial Fisheries Biologist, ADF&G, Bethel; unpublished data<sup>2</sup>). The majority of families interviewed during 2006 inseason subsistence surveys in the Lower Kuskokwim area indicated that Chinook, chum, and sockeye salmon fishing were at least 'Normal' or 'Very Good.' The majority (greater than 60%) of interviewed fishers for each of the first 5 years of the survey reported Chinook salmon fishing as 'Very Good' for the first 2 to 3 weeks of the survey. In 2006, the sixth season of the survey, 0 families described Chinook salmon fishing during the first week of the interview period (week ending June 4) as 'Very Good' (Appendix E1–E2). Eleven families interviewed in mid June reported that high water levels and low temperatures were causing Chinook salmon to run deep and possibly affecting catchability. Chinook seemed to be few and far between and drift net success was below average. Five fishers reported that they would be switching to set nets in an attempt to target Chinook in shallower water (Appendix C2). Later, these low initial catches were attributed to a late run of Chinook in 2006. Similarly, in 2006, the Chinook salmon catches in the Bethel test fishery were roughly 4–5 days late. Additionally, surface water temperatures for the first week in June (measured by the BTF) were 2–3° Celsius below historical averages. Water levels at the USGS check station were also fairly high (Doug Bue, Commercial Fisheries Biologist, ADF&G, Bethel; unpublished data).

During each year of this study, greater than 50% of families surveyed typically went fishing during the first 4 weeks of the survey. Because of the late arrival of Chinook salmon in 2006, no participating fishers were actively fishing during the first week of the 2006 survey (Table 2). When compared with run timing data from BTF, the 2006 inseason survey shows that surveyed fishers near Bethel are targeting the majority of the Chinook salmon run with emphasis on the leading edge of the run (Figure 9; Appendix E2). Bethel test fish catch numbers from 2001 through 2004 have estimated that 50% of the Chinook salmon run had passed Bethel between 17 and 23 June (Bue and Martz 2006). For those years catch numbers in the BTF and participation among interviewees in the subsistence fishery typically dropped off (Bue and Martz 2006; Martz and Dull 2006). In 2006, the 50% catch date for the Bethel test fishery was June 23, 1 day later than the next latest date in 2001 (Doug Bue, Commercial Fisheries Biologist, ADF&G, Bethel; unpublished data). The average passage date for Chinook salmon in the Bethel test fishery from 1984 to 2003 was estimated to occur on June 21 (Bue and Martz 2006). Therefore, despite the late apparent arrival of Chinook salmon in the Kuskokwim River in 2006, the date by which 50% of the run had passed Bethel as estimated by the BTF was only 2 days later than average.

In 2005, information from the Lower Kuskokwim subsistence catch monitoring project was an important factor in discontinuing the Kuskokwim River subsistence fishing schedule (Martz and

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<sup>2</sup> Alaska Department of Fish and Game, Bethel salmon drift gillnet test fishery project; information supplied by project leader Doug Bue.

Dull 2006). Likewise, in 2006, survey summary reports and a table of historical data were presented at each Working Group meeting during the survey period (Appendices C1–C7 and D1). Information from both the Lower Kuskokwim catch monitoring project and inseason run assessment projects such as the Bethel test fishery, were important factors in discontinuing the subsistence fishing schedule (John Linderman, Kuskokwim Area Management Biologist, ADF&G, Anchorage; personal communication). Historical information was also presented at Working Group meetings (Appendix D1). Only the weeks of June and the first 2 weeks of July during 2005 and 2006 were used in the comparison. This information, in conjunction with information from the Bethel test fishery, was used by ADF&G to determine if Chinook salmon abundance was sufficient to achieve escapement goals and amounts necessary for subsistence (ANS) use. At the June 15 Working Group meeting, ADF&G recommended discontinuing the subsistence fishing schedule for the Kuskokwim River after presentations from the Bethel test fishery and the Lower Kuskokwim subsistence catch monitoring project. After a period of deliberation the Working Group voted to unanimously support ADF&G’s recommendation.

Chum, sockeye, and coho subsistence fishing descriptions from the inseason subsistence survey are difficult to compare among years because the number of interviewed families fishing vary, both from week to week and between years, during the majority of these runs. In 2005, the scope of the project changed to adequately index run timing and relative abundance of salmon through the months of May, June, and July. As a result, information on coho salmon subsistence was not gathered in 2005. Chum salmon fishing in the 2005 season was similar to the 2002 season by responses from interviewed fishing families (Appendix E1). Chum salmon catch indices from the Bethel test fishery were higher than any other year on record. The central 50% of the chum salmon catch for the Bethel test fishery occurred between the dates of July 03 and July 14 in 2006 (Doug Bue, Commercial Fisheries Biologist, ADF&G, Bethel; unpublished data). One reason this may have not been reflected in the subsistence catch monitoring project in 2006 is that participation in the fishery by interviewed fishers dropped off considerably between the weeks ending June 25 (71% of participants fishing) and July 2 (9% of participants fishing) (Table 2). Comparing descriptions of sockeye salmon subsistence fishing for the same years indicates that sockeye salmon fishing during 2005 was generally better than the 2004 season (Appendix D1). In the week ending June 25 in 2006, 82% of 34 interviewed fishing families described fishing as ‘Very Good’, the highest percentage among all years. Similarly, 2005 sockeye salmon catches in the Bethel test fishery surpassed all years the project has been operational (Doug Bue, Commercial Fisheries Biologist, ADF&G, Bethel; unpublished data).

## CONCLUSIONS

The mainstem Kuskokwim River is a corridor for salmon to access tributary spawning streams. Amounts necessary for subsistence are established on a drainage-wide basis. Lower river subsistence fishers have the opportunity to harvest fish destined for spawning areas throughout the majority of the drainage while fishers in the Middle and Upper River areas have access to fish that travel to tributary streams adjacent to, or upstream from, the areas that they generally fish. Therefore, fishers in the upper and middle portions of the Kuskokwim River might have fewer stocks available for subsistence salmon harvest than fishers in the Lower River. Management of the Kuskokwim River subsistence salmon fishery is especially difficult because of the limited information that is available during the course of the salmon runs. Incorporating information from an inseason subsistence monitoring program into a management process is

beneficial toward managing the Kuskokwim subsistence salmon fisheries. Collection of inseason harvest information early in the run is especially beneficial because run assessment information is limited to the Bethel test fish program, since salmon do not arrive at escapement monitoring programs until mid to late June and, in the upper Kuskokwim area, in July.

The program has been well received by the subsistence fishers interviewed each year, who appreciate the opportunity to provide information towards management of Kuskokwim River fisheries. The information gathered by the inseason subsistence catch monitoring project has become vital to both Working Group members and State and Federal managers in making fishery management decisions. In addition to providing information regarding fish availability, subsistence fishing effort, qualitative catch rates and subsistence fishers' perceptions on salmon run timing, the inseason subsistence catch monitoring program provides feedback from subsistence fishers regarding the subsistence fishing schedule, and subsistence fishing closures around commercial fishing periods. This forum provided an excellent opportunity to discuss subsistence fishing issues with fishers.

Information provided by the inseason subsistence catch monitoring program increased the quality and consistency of information obtained from subsistence fishers in 2005. The number and frequency of interviews of individual fishing families increased the reliability of the salmon catch information. In combination with other information, inseason subsistence catch information was used to aid the decision making process of inseason management actions. The weekly reporting process resulted in discussions of survey data from the lower Kuskokwim River Area, which drew comments from Working Group members and fishers from the Middle and Upper River areas where surveys were not conducted. These discussions allowed fishers living and fishing upstream of the survey area to be briefed on surveyed fishing family success in the Lower River area and allowed lower river fishers to recognize the difference in fish availability (particularly Chinook salmon) in the middle and upper Kuskokwim River. Specifically, discussions focused on the success of subsistence fishers during the month of June, the abundance of Chinook, chum, and sockeye in the Bethel test fishery, and discontinuation of the subsistence fishing schedule in the Kuskokwim River.

Historically, fishery managers collected inseason information about subsistence activities ad hoc from subsistence fishers. This project has increased the number and frequency of fishing family interviews and has provided a broader representation of subsistence salmon catch information that more accurately reflects the status of the lower Kuskokwim River salmon fishery than information gathered ad hoc. Inseason subsistence catch information was used in conjunction with other information (such as Bethel test fish catch indices) to determine inseason management decisions. Now that multiple years of information have been collected, information on an 'in progress' Kuskokwim River fishery can be compared to prior years' information. In this way, inseason subsistence catch information becomes useful in implementing fishery management actions directed towards achieving escapement goals, providing for a subsistence use priority, and to provide an opportunity for other fisheries. Timely evaluation of inseason subsistence catch information has the potential to increase the precision of the Kuskokwim River fishery management system by providing information that is used, in part, to assess salmon run abundance inseason.

## **RECOMMENDATIONS**

During June, inseason salmon run assessment information is limited to the Bethel test fishery and is generally not available from escapement monitoring programs. Subsistence information from the lower river is beneficial in assisting inseason management actions.

We recommend that:

1. ONC includes a census of active and inactive fish camps and those surveyed each week to provide a better definition of the Lower Kuskokwim survey area and gather information on the number of camps that are actively used from a total number in the survey area each week (remain confidential).
2. Interview survey forms should be completely filled out during each interview.
3. Gear use trends should be noted in weekly and yearly summaries.
4. Technicians conducting the inseason subsistence surveys should insure each fisher has a subsistence catch calendar in their possession and that the fisher fills out the calendar on at least a weekly basis.
5. Fishery managers and Working Group members may benefit by accompanying technicians in order to become more familiar with the program. Any such expeditions will have to be prearranged with the foreknowledge and permission of the subsistence fishers who will be visited.
6. Technicians should collect more information on subsistence fishers' perception of water level for the Kuskokwim River during the first several weeks of June for later comparison with results from USGS gauging station at Crooked Creek in order to assess applicability of water level at Crooked Creek to water level in the lower river.

Modifications that may enhance the quality, and speed the completion of future reports include: having ONC provide completed data forms (modified to remain confidential) to ADF&G after the season in the event questions arise regarding details on weekly summary sheets, and allowing survey technicians to distribute subsistence salmon catch calendars to interviewed subsistence fishers.

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## **TABLES AND FIGURES**

**Table 1.**—District 1, Kuskokwim River, commercial fishing periods and subsistence closure hours, 2006.

| <b>Period Number</b> | <b>Date</b> | <b>Subdistrict</b> | <b>Hours Fished</b> | <b>Total Hours of<br/>Subsistence Closures</b> |
|----------------------|-------------|--------------------|---------------------|------------------------------------------------|
| 1                    | Jun 26      | 1A                 | 6                   | 15                                             |
| 2                    | Jun 28      | 1B                 | 6                   | 15                                             |
| 3                    | Aug 01      | 1B                 | 6                   | 15                                             |
| 4                    | Aug 03      | 1A                 | 6                   | 15                                             |
| 5                    | Aug 04      | 1B                 | 6                   | 15                                             |
| 6                    | Aug 07      | 1A                 | 6                   | 15                                             |
| 7                    | Aug 08      | 1B                 | 6                   | 15                                             |
| 8                    | Aug 10      | 1A                 | 6                   | 15                                             |
| 9                    | Aug 11      | 1B                 | 6                   | 15                                             |
| 10                   | Aug 14      | 1A                 | 6                   | 15                                             |
| 11                   | Aug 15      | 1B                 | 6                   | 15                                             |
| 12                   | Aug 17      | 1A                 | 6                   | 15                                             |
| 13                   | Aug 18      | 1B                 | 6                   | 15                                             |
| 14                   | Aug 21      | 1A                 | 6                   | 15                                             |
| 15                   | Aug 22      | 1B                 | 6                   | 15                                             |
| 16                   | Aug 24      | 1A                 | 6                   | 15                                             |
| 17                   | Aug 25      | 1B                 | 6                   | 15                                             |
| 14                   | Aug 28      | Full District      | 6                   | 15                                             |
| 15                   | Aug 30      | Full District      | 6                   | 15                                             |

**Table 2.**—Kuskokwim River inseason subsistence summary report, summary of salmon fishing, 2006.

| <b>Summary of Subsistence Salmon Information Collected by ONC Technicians <sup>a</sup></b> |                           |                |                    |                       |               |             |                    |               |             |                       |               |             |
|--------------------------------------------------------------------------------------------|---------------------------|----------------|--------------------|-----------------------|---------------|-------------|--------------------|---------------|-------------|-----------------------|---------------|-------------|
| <b>Week Ending</b>                                                                         | <b>Number of Families</b> |                |                    | <b>Chinook Salmon</b> |               |             | <b>Chum Salmon</b> |               |             | <b>Sockeye Salmon</b> |               |             |
|                                                                                            | <b>Interviewed</b>        | <b>Fishing</b> | <b>Not Fishing</b> | <b>Very Good</b>      | <b>Normal</b> | <b>Poor</b> | <b>Very Good</b>   | <b>Normal</b> | <b>Poor</b> | <b>Very Good</b>      | <b>Normal</b> | <b>Poor</b> |
| Jun 03                                                                                     | 22                        | 0              | 22                 | 0                     | 0             | 0           |                    |               |             |                       |               |             |
| Jun 10                                                                                     | 32                        | 19             | 13                 | 6                     | 13            | 0           |                    |               |             |                       |               |             |
| Jun 17                                                                                     | 36                        | 30             | 6                  | 28                    | 2             | 0           | 18                 | 12            | 0           | 16                    | 14            | 0           |
| Jun 24                                                                                     | 48                        | 43             | 5                  | 34                    | 9             | 0           | 39                 | 4             | 0           | 8                     | 24            | 11          |
| Jul 01                                                                                     | 46                        | 14             | 32                 | 3                     | 11            | 0           | 10                 | 4             | 0           | 6                     | 8             | 0           |
| Jul 08                                                                                     | 38                        | 8              | 30                 | 0                     | 8             | 0           | 2                  | 6             | 0           | 3                     | 5             | 0           |
| Jul 15                                                                                     | 26                        | 5              | 21                 | 0                     | 5             | 0           | 5                  | 0             | 0           | 0                     | 5             | 0           |
| Total <sup>b</sup>                                                                         | 248                       |                |                    |                       |               |             |                    |               |             |                       |               |             |
| Average                                                                                    | 35                        | 17             | 18                 | 10                    | 7             | 0           | 15                 | 5             | 0           | 7                     | 11            | 2           |

<sup>a</sup> Represents responses from the question “Compared with this time in a “Normal” year how were catch rates for salmon this week?”

<sup>b</sup> Represents the total number of interviews conducted during the survey year, most families were interviewed more than once.

**Table 3.**—Kuskokwim River subsistence salmon summary, quality of fishing report, 2006.

| <b>Summary of Subsistence Salmon Information Collected by ONC Technicians <sup>a</sup></b> |                    |                |                      |                                        |               |             |                                     |               |             |                                        |               |             |
|--------------------------------------------------------------------------------------------|--------------------|----------------|----------------------|----------------------------------------|---------------|-------------|-------------------------------------|---------------|-------------|----------------------------------------|---------------|-------------|
| <b>Week<br/>Ending</b>                                                                     | <b>Number</b>      |                | <b>%<br/>Fishing</b> | <b>% Describing Chinook Fishing as</b> |               |             | <b>% Describing Chum Fishing as</b> |               |             | <b>% Describing Sockeye Fishing as</b> |               |             |
|                                                                                            | <b>Interviewed</b> | <b>Fishing</b> |                      | <b>Very Good</b>                       | <b>Normal</b> | <b>Poor</b> | <b>Very Good</b>                    | <b>Normal</b> | <b>Poor</b> | <b>Very Good</b>                       | <b>Normal</b> | <b>Poor</b> |
| Jun 03                                                                                     | 22                 | 0              | 0%                   | 0%                                     | 0%            | 0%          |                                     |               |             |                                        |               |             |
| Jun 10                                                                                     | 32                 | 19             | 59%                  | 32%                                    | 68%           | 0%          |                                     |               |             |                                        |               |             |
| Jun 17                                                                                     | 36                 | 30             | 83%                  | 93%                                    | 7%            | 0%          | 60%                                 | 40%           | 0%          | 53%                                    | 47%           | 0%          |
| Jun 24                                                                                     | 48                 | 43             | 90%                  | 79%                                    | 21%           | 0%          | 91%                                 | 9%            | 0%          | 19%                                    | 56%           | 25%         |
| Jul 01                                                                                     | 46                 | 14             | 30%                  | 21%                                    | 79%           | 0%          | 71%                                 | 29%           | 0%          | 43%                                    | 57%           | 0%          |
| Jul 08                                                                                     | 38                 | 8              | 21%                  | 0%                                     | 100%          | 0%          | 25%                                 | 75%           | 0%          | 38%                                    | 62%           | 0%          |
| Jul 15                                                                                     | 26                 | 5              | 19%                  | 0%                                     | 100%          | 0%          | 100%                                | 0%            | 0%          | 0%                                     | 100%          | 0%          |
| Total <sup>b</sup>                                                                         | 248                |                |                      |                                        |               |             |                                     |               |             |                                        |               |             |
| Average                                                                                    | 35                 | 17             |                      |                                        |               |             |                                     |               |             |                                        |               |             |

<sup>a</sup> Represents responses from the question “Compared with this time in a “Normal” year how were catch rates for salmon this week?”

<sup>b</sup> Represents the total number of interviews conducted during the survey year, most families were interviewed more than once.

**Table 4.**—Kuskokwim River inseason subsistence survey fishing gear use summary, 2006.

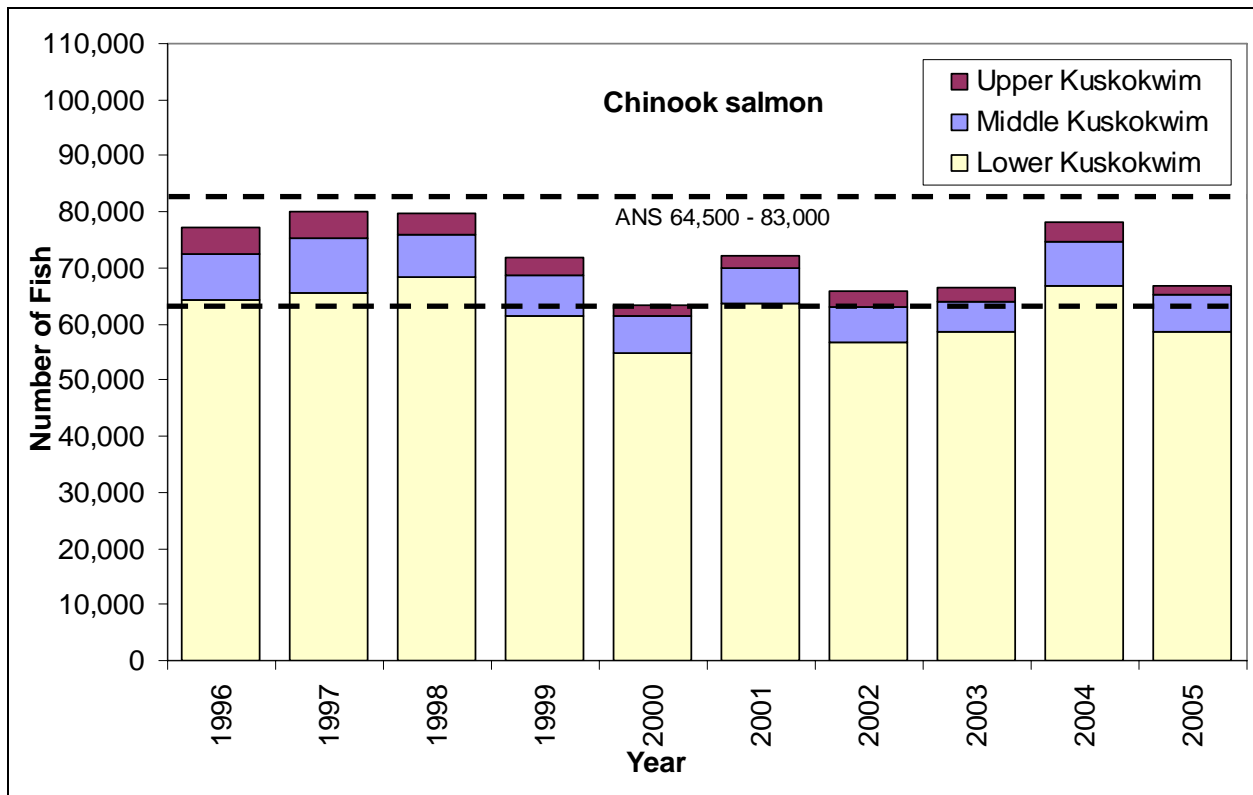
| <b>Summary of Subsistence Salmon Information Collected by ONC Technicians</b> |                           |                |                          |               |                           |                       |                          |                     |                          |
|-------------------------------------------------------------------------------|---------------------------|----------------|--------------------------|---------------|---------------------------|-----------------------|--------------------------|---------------------|--------------------------|
| <b>Week</b>                                                                   | <b>Number of Families</b> |                | <b>Fishing with Only</b> |               | <b>Using Both</b>         |                       | <b>Fishing with Only</b> |                     | <b>Using Both</b>        |
| <b>Ending</b>                                                                 | <b>Interviewed</b>        | <b>Fishing</b> | <b>Driftnet</b>          | <b>Setnet</b> | <b>Drift &amp; Setnet</b> | <b>Rod &amp; Reel</b> | <b>&gt; 6" mesh</b>      | <b>&lt; 6" mesh</b> | <b>&gt;6" and &lt;6"</b> |
| Jun 03                                                                        | 22                        | 0              | 0                        | 0             | 0                         | 0                     | 0                        | 0                   | 0                        |
| Jun 10                                                                        | 32                        | 19             | 14                       | 4             | 1                         | 0                     | 18                       | 1                   | 0                        |
| Jun 17                                                                        | 36                        | 30             | 25                       | 0             | 5                         | 0                     | 24                       | 1                   | 5                        |
| Jun 24                                                                        | 48                        | 43             | 36                       | 4             | 3                         | 0                     | 28                       | 6                   | 9                        |
| Jul 01                                                                        | 46                        | 14             | 12                       | 1             | 0                         | 1                     | 8                        | 5                   | 0                        |
| Jul 08                                                                        | 38                        | 8              | 7                        | 0             | 0                         | 1                     | 2                        | 5                   | 0                        |
| Jul 15                                                                        | 26                        | 5              | 3                        | 0             | 0                         | 2                     | 1                        | 2                   | 0                        |
| Total <sup>a</sup>                                                            | 248                       |                |                          |               |                           |                       |                          |                     |                          |
| Average                                                                       | 35                        | 17             | 14                       | 1             | 1                         | 1                     | 12                       | 3                   | 2                        |

<sup>a</sup> Represents the total number of interviews conducted during the survey year, most families were interviewed more than once.

**Table 5.**—Kuskokwim River subsistence summary report, run timing, 2006.

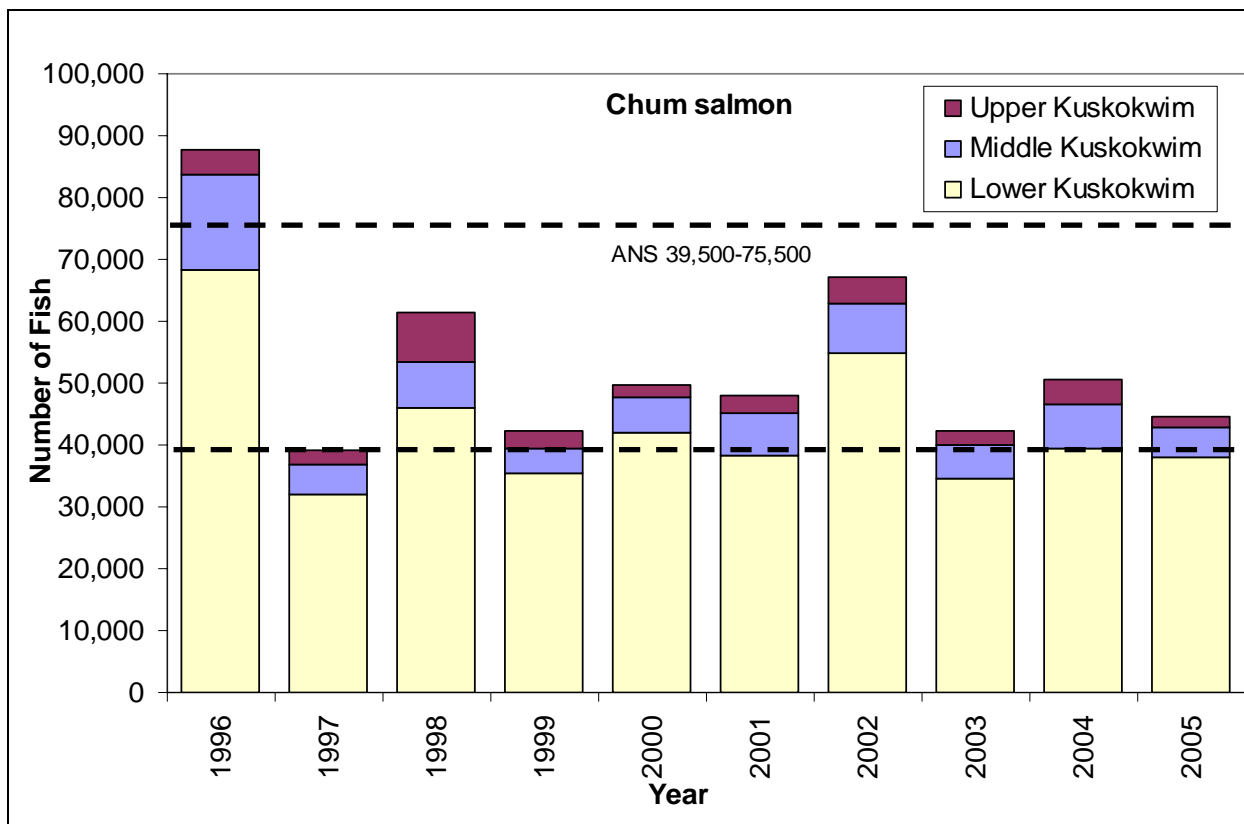
| <b>Summary of Subsistence Salmon Information Collected by ONC Technicians</b> |                           |                |                    |                                   |               |             |                    |               |             |                       |               |             |
|-------------------------------------------------------------------------------|---------------------------|----------------|--------------------|-----------------------------------|---------------|-------------|--------------------|---------------|-------------|-----------------------|---------------|-------------|
| <b>Week</b>                                                                   | <b>Number of Families</b> |                |                    | <b>Chinook Salmon<sup>a</sup></b> |               |             | <b>Chum Salmon</b> |               |             | <b>Sockeye Salmon</b> |               |             |
| <b>Ending</b>                                                                 | <b>Interviewed</b>        | <b>Fishing</b> | <b>Not Fishing</b> | <b>Early</b>                      | <b>Normal</b> | <b>Late</b> | <b>Early</b>       | <b>Normal</b> | <b>Late</b> | <b>Early</b>          | <b>Normal</b> | <b>Late</b> |
| Jun 03                                                                        | 22                        | 0              | 22                 | 0                                 | 0             | 22          |                    |               |             |                       |               |             |
| Jun 10                                                                        | 32                        | 19             | 13                 | 0                                 | 8             | 11          |                    |               |             |                       |               |             |
| Jun 17                                                                        | 36                        | 30             | 6                  | 0                                 | 10            | 20          | 22                 | 8             | 0           | 11                    | 19            | 0           |
| Jun 24                                                                        | 48                        | 43             | 14                 | 0                                 | 13            | 10          | 0                  | 43            | 0           | 0                     | 43            | 0           |
| Jul 01                                                                        | 46                        | 14             | 32                 | 0                                 | 28            | 10          | 0                  | 38            | 0           | 0                     | 38            | 0           |
| Jul 08                                                                        | 38                        | 8              | 30                 | 0                                 | 28            | 10          | 0                  | 38            | 0           | 0                     | 38            | 0           |
| Jul 15                                                                        | 26                        | 5              | 21                 | 0                                 | 28            | 10          | 0                  | 38            | 0           | 0                     | 38            | 0           |
| Total                                                                         | 248                       |                |                    |                                   |               |             |                    |               |             |                       |               |             |
| Average                                                                       | 35                        | 17             | 20                 | 0                                 | 15            | 13          | 4                  | 33            | 0           | 2                     | 35            | 0           |

<sup>a</sup> Although Chinook arrived later than usual from previous years, their run timing was felt to be normal when taking the actual later date of river break-up into consideration.



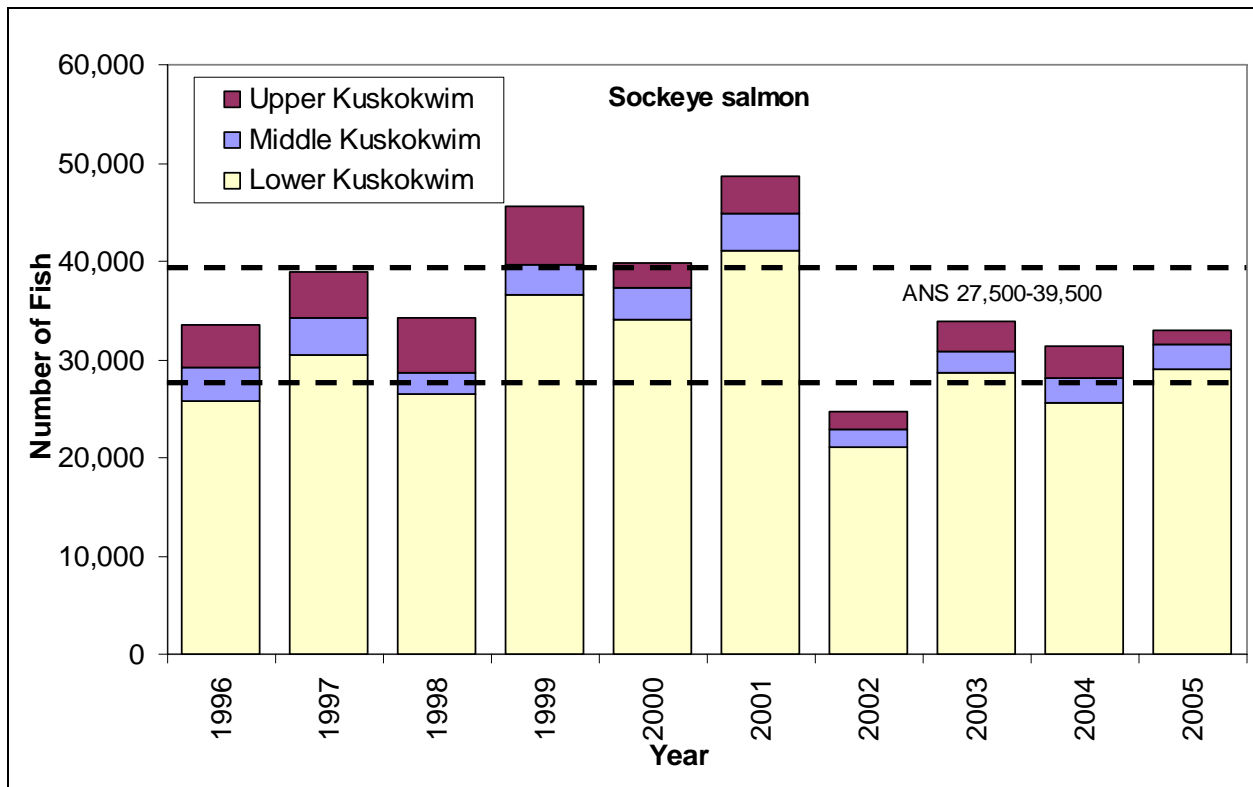
Note: ANS = amount necessary for subsistence.

**Figure 1.**—Subsistence Chinook salmon harvest as reported by postseason harvest surveys, Kuskokwim River, 1996–2005.



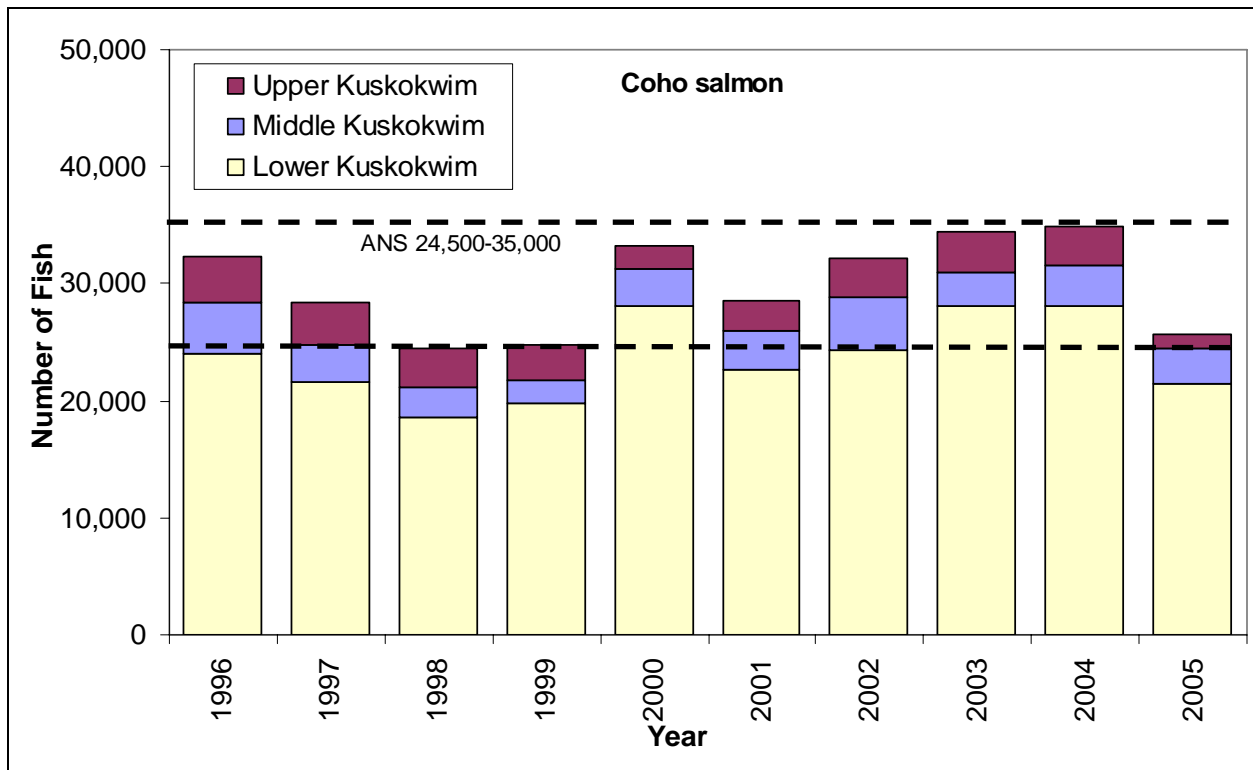
Note: ANS = amount necessary for subsistence.

**Figure 2.**—Subsistence chum salmon harvest as reported by postseason harvest surveys, Kuskokwim River, 1996–2005.



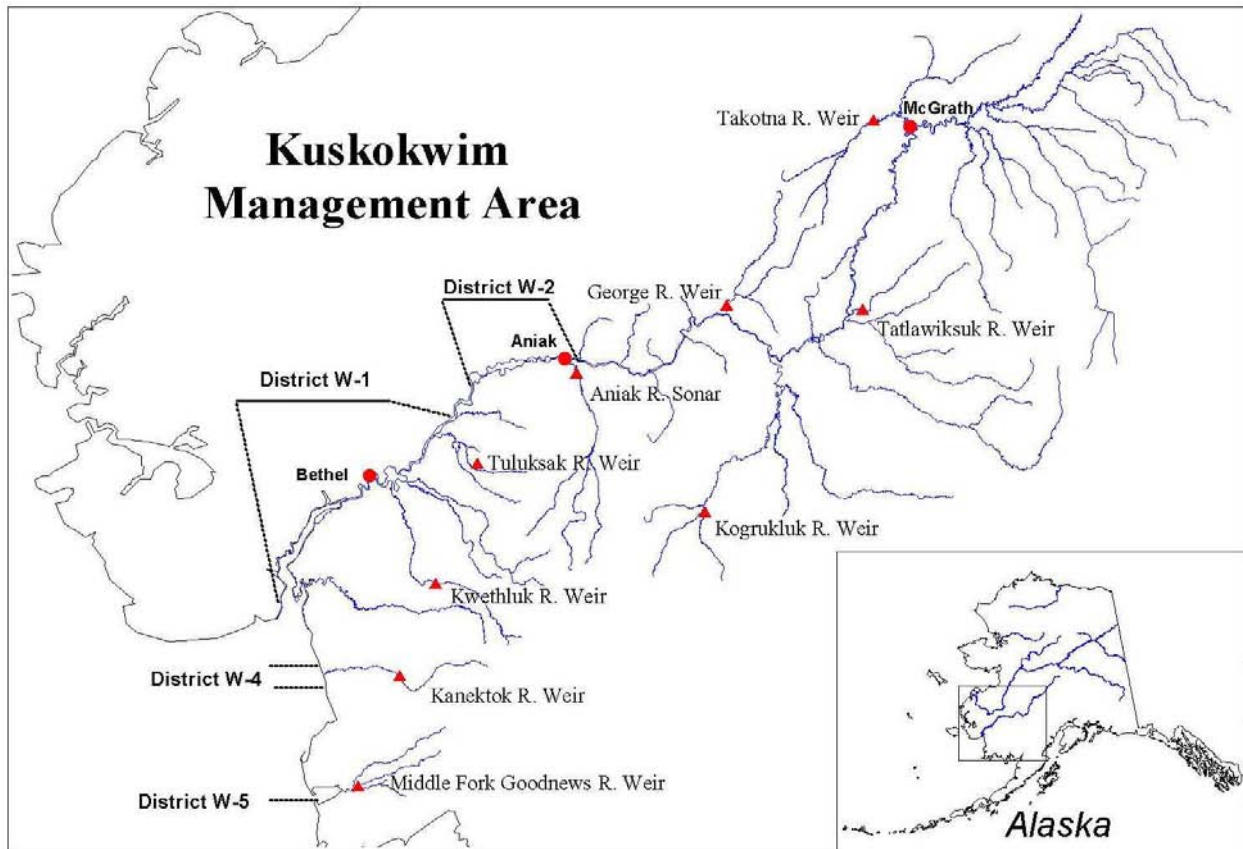
Note: ANS = amount necessary for subsistence.

**Figure 3.**—Subsistence sockeye salmon harvest as reported by postseason harvest surveys, Kuskokwim River, 1996–2005.

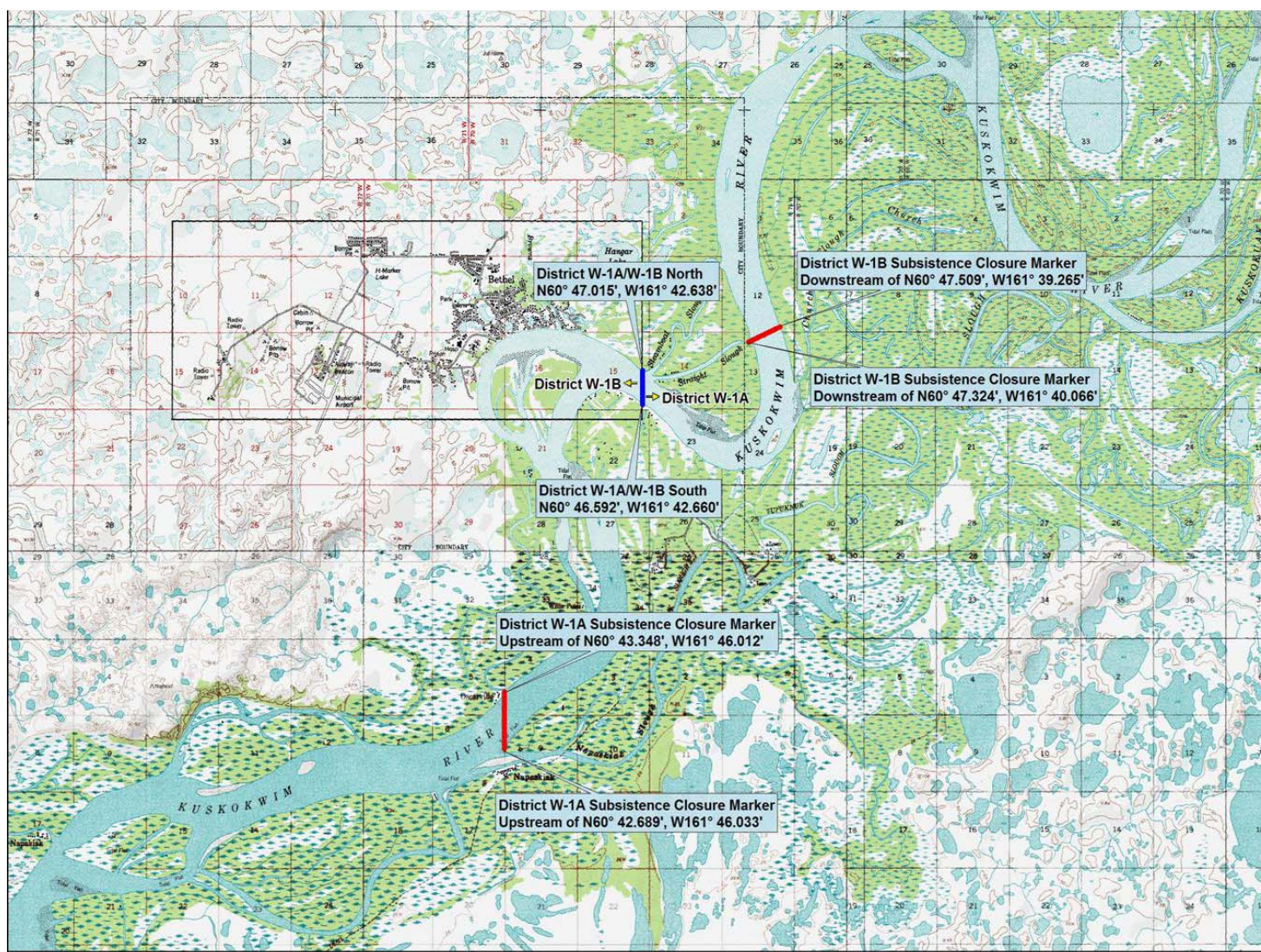


Note: ANS = amount necessary for subsistence.

**Figure 4.**—Subsistence coho salmon harvest as reported by postseason harvest surveys, Kuskokwim River, 1996–2005.



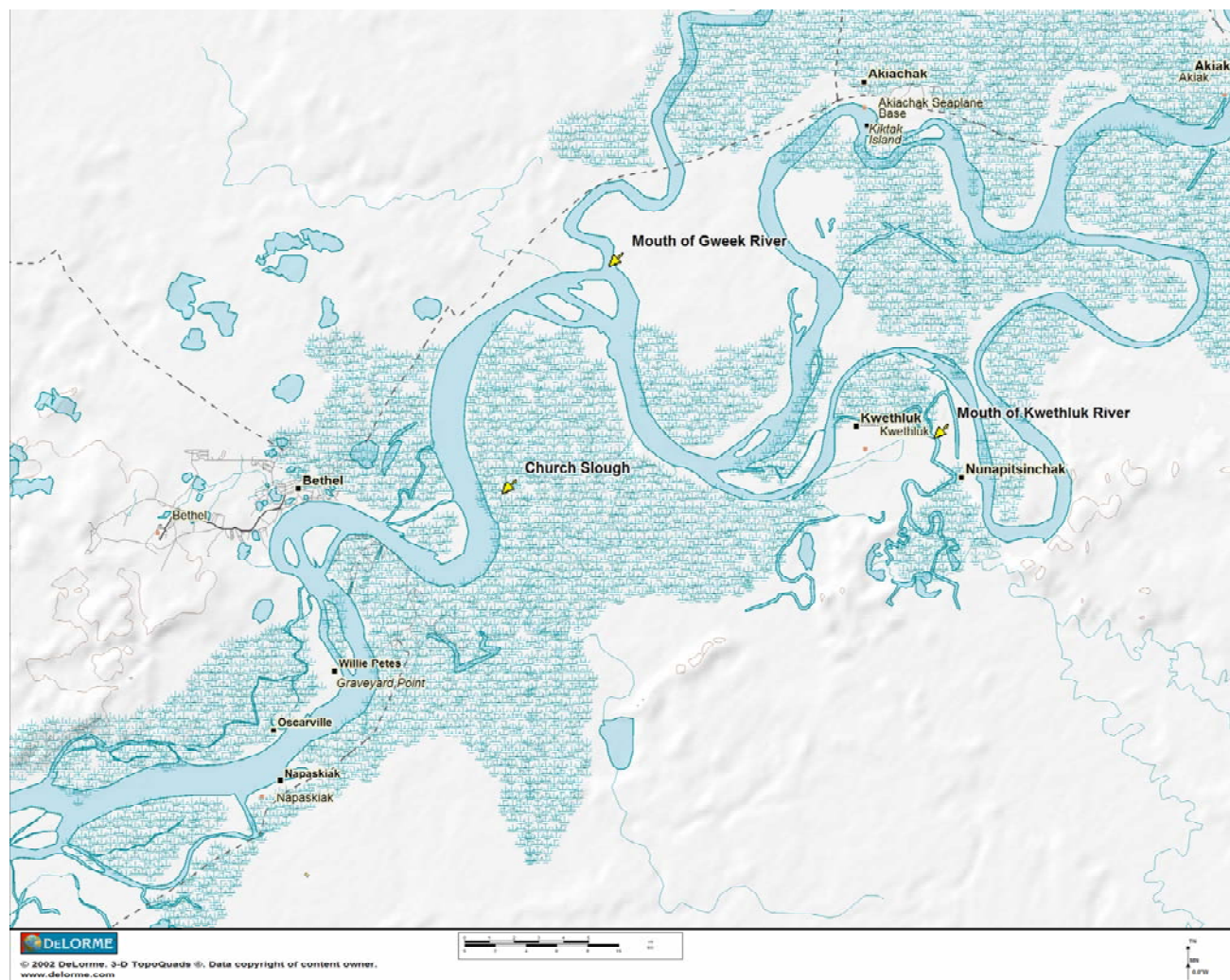
**Figure 5.**—Kuskokwim Management Area.



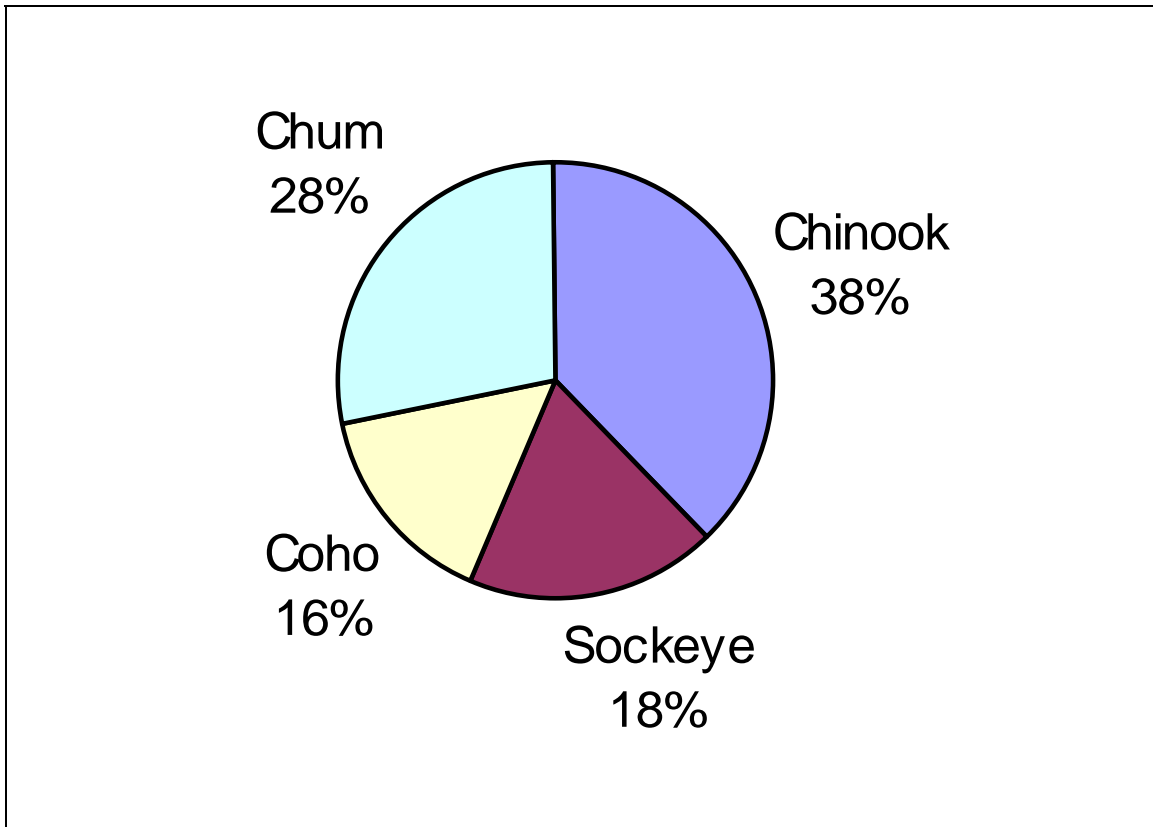
Note: Bethel Area commercial salmon sub-district W-1A and W-1B boundary and subsistence salmon fishing closure boundaries during sub-district W1-A and W-1B commercial openings (ADF&G 2004).

Source: Map not to scale. © 2002 DeLorme (www.delorme.com) 3-D TopoQuads®

**Figure 6.**—District 1, Subdistricts 1-A and 1-B.

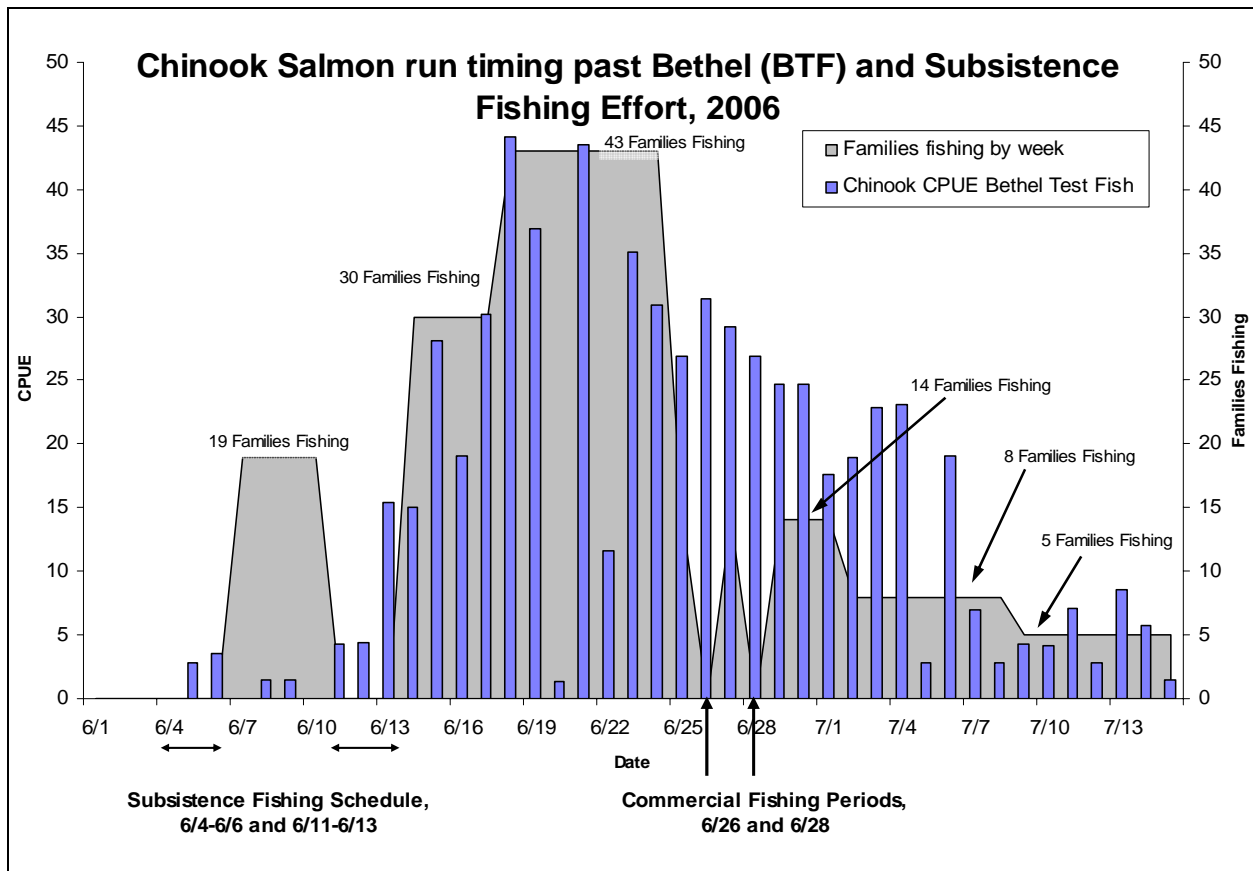


**Figure 7.**—Subsistence survey area, 2006.



Source: Fall et al. *In prep.*

**Figure 8.**—Composition of subsistence harvest by species as reported by postseason harvest surveys, Kuskokwim Management Area, 10-year average, 1996–2005.



**Figure 9.**—Chinook salmon run timing past Bethel as estimated by CPUE in the Bethel test fishery, compared with fishing effort by week as shown by the inseason subsistence monitoring program.



## **APPENDIX A. KUSKOKWIM RIVER SALMON UTILIZATION**

**Appendix A1.**—Historical utilization of Chinook salmon in the Kuskokwim River.

| Year              | Commercial Harvest <sup>a</sup> |          | Subsistence Harvest <sup>b,c</sup> |          | Test-Fish | Sport Fish | Total       | 10-Year |
|-------------------|---------------------------------|----------|------------------------------------|----------|-----------|------------|-------------|---------|
|                   | Annual                          | 10yr Avg | Annual                             | 10yr Avg | Harvest   | Harvest    | Utilization | Average |
| 1960              | 5,969                           |          | 18,887                             |          |           |            | 24,856      |         |
| 1961              | 18,918                          |          | 28,934                             |          |           |            | 47,852      |         |
| 1962              | 15,341                          |          | 13,582                             |          |           |            | 28,923      |         |
| 1963              | 12,016                          |          | 34,482                             |          |           |            | 46,498      |         |
| 1964              | 17,149                          |          | 29,017                             |          |           |            | 46,166      |         |
| 1965              | 21,989                          |          | 24,697                             |          |           |            | 46,686      |         |
| 1966              | 25,545                          |          | 49,325                             |          | 285       |            | 75,155      |         |
| 1967              | 29,986                          |          | 59,913                             |          | 766       |            | 90,665      |         |
| 1968              | 34,278                          |          | 32,942                             |          | 608       |            | 67,828      |         |
| 1969              | 43,997                          | 22,519   | 40,617                             | 33,240   | 833       |            | 85,447      | 56,008  |
| 1970              | 39,290                          | 25,851   | 69,612                             | 38,312   | 857       |            | 109,759     | 64,498  |
| 1971              | 40,274                          | 27,987   | 43,242                             | 39,743   | 756       |            | 84,272      | 68,140  |
| 1972              | 39,454                          | 30,398   | 40,396                             | 42,424   | 756       |            | 80,606      | 73,308  |
| 1973              | 32,838                          | 32,480   | 39,093                             | 42,885   | 577       |            | 72,508      | 75,909  |
| 1974              | 18,664                          | 32,632   | 27,139                             | 42,698   | 1,236     |            | 47,039      | 75,997  |
| 1975              | 22,135                          | 32,646   | 48,448                             | 45,073   | 704       |            | 71,287      | 78,457  |
| 1976              | 30,735                          | 33,165   | 58,606                             | 46,001   | 1,206     |            | 90,547      | 79,996  |
| 1977              | 35,830                          | 33,750   | 56,580                             | 45,668   | 1,264     | 33         | 93,707      | 80,300  |
| 1978              | 45,641                          | 34,886   | 36,270                             | 46,000   | 1,445     | 116        | 83,472      | 81,864  |
| 1979              | 38,966                          | 34,383   | 56,283                             | 47,567   | 979       | 74         | 96,302      | 82,950  |
| 1980              | 35,881                          | 34,042   | 59,892                             | 46,595   | 1,033     | 162        | 96,968      | 81,671  |
| 1981              | 47,663                          | 34,781   | 61,329                             | 48,404   | 1,218     | 189        | 110,399     | 84,284  |
| 1982              | 48,234                          | 35,659   | 58,018                             | 50,166   | 542       | 207        | 107,001     | 86,923  |
| 1983              | 33,174                          | 35,692   | 47,412                             | 50,998   | 1,139     | 420        | 82,145      | 87,887  |
| 1984              | 31,742                          | 37,000   | 56,930                             | 53,977   | 231       | 273        | 89,176      | 92,100  |
| 1985              | 37,889                          | 38,576   | 43,874                             | 53,519   | 79        | 85         | 81,927      | 93,164  |
| 1986              | 19,414                          | 37,443   | 51,019                             | 52,761   | 130       | 49         | 70,612      | 91,171  |
| 1987              | 36,179                          | 37,478   | 67,325                             | 53,835   | 384       | 355        | 104,243     | 92,225  |
| 1988 <sup>d</sup> | 55,716                          | 38,486   | 70,943                             | 57,303   | 576       | 528        | 127,763     | 96,654  |
| 1989              | 43,217                          | 38,911   | 85,323                             | 60,206   | 543       | 1,218      | 130,301     | 100,053 |
| 1990              | 53,504                          | 40,673   | 92,675                             | 63,485   | 512       | 394        | 147,085     | 105,065 |
| 1991              | 37,778                          | 39,685   | 90,226                             | 66,375   | 117       | 401        | 128,522     | 106,878 |
| 1992              | 46,872                          | 39,549   | 68,706                             | 67,443   | 1,380     | 367        | 117,325     | 107,910 |
| 1993              | 8,735                           | 37,105   | 91,722                             | 71,874   | 2,483     | 587        | 103,527     | 110,048 |
| 1994              | 16,211                          | 35,552   | 98,378                             | 76,019   | 1,937     | 1,139      | 117,665     | 112,897 |
| 1995              | 30,846                          | 34,847   | 100,157                            | 81,647   | 1,421     | 541        | 132,965     | 118,001 |
| 1996              | 7,419                           | 33,648   | 81,597                             | 84,705   | 247       | 1,432      | 90,695      | 120,009 |

-continued-

**Appendix A1.**—Page 2 of 2.

| <b>Year</b> | <b>Commercial Harvest<sup>a</sup></b> |                 | <b>Subsistence Harvest<sup>b,c</sup></b> |                 | <b>Test-Fish</b> | <b>Sport Fish</b> | <b>Total</b>       | <b>10-yr</b> |
|-------------|---------------------------------------|-----------------|------------------------------------------|-----------------|------------------|-------------------|--------------------|--------------|
|             | <b>Annual</b>                         | <b>10yr Avg</b> | <b>Annual</b>                            | <b>10yr Avg</b> | <b>Harvest</b>   | <b>Harvest</b>    | <b>Utilization</b> | <b>Avg.</b>  |
| 1997        | 10,441                                | 31,074          | 85,506                                   | 86,523          | 332              | 1,227             | 97,506             | 119,335      |
| 1998        | 17,359                                | 27,238          | 86,113                                   | 88,040          | 210              | 1,434             | 105,116            | 117,071      |
| 1999        | 4,705                                 | 23,387          | 77,660                                   | 87,274          | 98               | 252               | 82,715             | 112,312      |
| 2000        | 444                                   | 18,081          | 68,841                                   | 84,891          | 64               | 105               | 69,454             | 104,549      |
| 2001        | 90                                    | 14,312          | 77,570                                   | 83,625          | 86               | 290               | 78,036             | 99,500       |
| 2002        | 72                                    | 9,632           | 70,219                                   | 83,776          | 288              | 300               | 70,879             | 94,856       |
| 2003        | 158                                   | 8,775           | 72,498                                   | 81,854          | 409              | 401               | 73,466             | 91,850       |
| 2004        | 2,300                                 | 7,383           | 80,065 <sup>e</sup>                      | 80,023          | 691              | 857               | 83,913             | 88,474       |
| 2005        | 4,784                                 | 4,777           | 70,393 <sup>e</sup>                      | 77,046          | 608              | 1092              | 74,697             | 82,648       |
| 2006        | 2,777                                 | 4,313           | <sup>f</sup>                             |                 | 352              | <sup>f</sup>      | <sup>f</sup>       |              |

10-yr Avg.

|             |       |  |        |  |     |     |        |
|-------------|-------|--|--------|--|-----|-----|--------|
| (1995–2004) | 7,383 |  | 80,023 |  | 385 | 684 | 88,474 |
|-------------|-------|--|--------|--|-----|-----|--------|

<sup>a</sup> Districts 1 and 2 also includes harvests in District 3 from 1960 to 1965.

<sup>b</sup> Estimated subsistence harvest expanded from villages surveyed.

<sup>c</sup> Discrepancies in subsistence harvest numbers by area may be attributable changes in geographic area definitions over time.

<sup>d</sup> Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

<sup>e</sup> Preliminary estimate.

<sup>f</sup> Data not yet available.

**Appendix A2.**—Historical utilization of chum salmon in the Kuskokwim River.

| Year              | Commercial Harvest <sup>a</sup> |          | Subsistence Harvest <sup>b,c</sup> |          | Test-Fish          | Sport Fish | Total       | 10-Year |
|-------------------|---------------------------------|----------|------------------------------------|----------|--------------------|------------|-------------|---------|
|                   | Annual                          | 10yr Avg | Annual                             | 10yr Avg | Harvest            | Harvest    | Utilization | Average |
| 1960              | 0                               |          | 301,753 <sup>d</sup>               |          |                    |            | 301,753     |         |
| 1961              | 0                               |          | 179,529 <sup>d</sup>               |          |                    |            | 179,529     |         |
| 1962              | 0                               |          | 161,849 <sup>d</sup>               |          |                    |            | 161,849     |         |
| 1963              | 0                               |          | 137,649 <sup>d</sup>               |          |                    |            | 137,649     |         |
| 1964              | 0                               |          | 190,191 <sup>d</sup>               |          |                    |            | 190,191     |         |
| 1965              | 0                               |          | 250,878 <sup>d</sup>               |          |                    |            | 250,878     |         |
| 1966              | 0                               |          | 175,735 <sup>d</sup>               |          | 502 <sup>e</sup>   |            | 176,237     |         |
| 1967              | 148                             |          | 208,445 <sup>d</sup>               |          | 338                |            | 208,931     |         |
| 1968              | 187                             |          | 275,008 <sup>d</sup>               |          | 562                |            | 275,757     |         |
| 1969              | 7,165                           | 750      | 204,105 <sup>d</sup>               |          | 384                |            | 211,654     | 209,443 |
| 1970              | 1,664                           | 916      | 246,810 <sup>d</sup>               | 203,020  | 1,139 <sup>e</sup> |            | 249,613     | 204,229 |
| 1971              | 68,914                          | 7,808    | 116,391 <sup>d</sup>               | 196,706  | 254                |            | 185,559     | 204,832 |
| 1972              | 78,619                          | 15,670   | 120,316 <sup>d</sup>               | 192,553  | 486                |            | 199,421     | 208,589 |
| 1973              | 148,746                         | 30,544   | 179,259 <sup>d</sup>               | 196,714  | 675                |            | 328,680     | 227,692 |
| 1974              | 171,887                         | 47,733   | 277,170 <sup>d</sup>               | 205,412  | 2,021              |            | 451,078     | 253,781 |
| 1975              | 184,171                         | 66,150   | 176,389 <sup>d</sup>               | 197,963  | 1,062              |            | 361,622     | 264,855 |
| 1976              | 177,864                         | 83,937   | 223,792 <sup>d</sup>               | 202,769  | 2,101              |            | 403,757     | 287,607 |
| 1977              | 248,721                         | 108,794  | 198,355 <sup>d</sup>               | 201,760  | 576                | 125        | 447,777     | 311,492 |
| 1978              | 248,656                         | 133,641  | 118,809 <sup>d</sup>               | 186,140  | 2,153              | 555        | 370,173     | 320,933 |
| 1979              | 261,874                         | 159,112  | 161,239 <sup>d</sup>               | 181,853  | 412                | 259        | 423,784     | 342,146 |
| 1980              | 483,751                         | 207,320  | 165,172 <sup>d</sup>               | 173,689  | 2,058              | 324        | 651,305     | 382,316 |
| 1981              | 418,677                         | 242,297  | 157,306 <sup>d</sup>               | 177,781  | 1,793              | 598        | 578,374     | 421,597 |
| 1982              | 278,306                         | 262,265  | 190,011 <sup>d</sup>               | 184,750  | 504                | 1,125      | 469,946     | 448,650 |
| 1983              | 276,698                         | 275,061  | 146,876 <sup>d</sup>               | 181,512  | 1,069              | 922        | 425,565     | 458,338 |
| 1984              | 423,718                         | 300,244  | 142,542 <sup>d</sup>               | 168,049  | 1,186              | 520        | 567,966     | 470,027 |
| 1985              | 199,478                         | 301,774  | 94,750                             | 159,885  | 616                | 150        | 294,994     | 463,364 |
| 1986              | 309,213                         | 314,909  | 141,931 <sup>d</sup>               | 151,699  | 1,693              | 245        | 453,082     | 468,297 |
| 1987              | 574,336                         | 347,471  | 70,709                             | 138,935  | 2,302              | 566        | 647,913     | 488,310 |
| 1988 <sup>f</sup> | 1,381,674                       | 460,773  | 151,967                            | 142,250  | 4,379              | 764        | 1,538,784   | 605,171 |
| 1989              | 749,182                         | 509,503  | 145,106                            | 140,637  | 2,082              | 2,023      | 898,393     | 652,632 |
| 1990              | 461,624                         | 507,291  | 131,470                            | 137,267  | 2,107              | 533        | 595,734     | 647,075 |
| 1991              | 431,802                         | 508,603  | 96,314                             | 131,168  | 931                | 378        | 529,425     | 642,180 |
| 1992              | 344,603                         | 515,233  | 99,577                             | 122,124  | 15,330             | 608        | 460,118     | 641,197 |
| 1993              | 43,337                          | 491,897  | 61,724                             | 113,609  | 8,451              | 359        | 113,871     | 610,028 |
| 1994              | 271,115                         | 476,636  | 76,949                             | 107,050  | 11,998             | 1,280      | 361,342     | 589,366 |
| 1995              | 605,918                         | 517,280  | 68,941                             | 104,469  | 17,473             | 226        | 692,558     | 629,122 |
| 1996              | 207,877                         | 507,147  | 90,239                             | 99,300   | 2,864              | 280        | 301,260     | 613,940 |

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**Appendix A2.**–Page 2 of 2.

| <b>Year</b> | <b>Commercial Harvest<sup>a</sup></b> |                 | <b>Subsistence Harvest<sup>b,c</sup></b> |                 | <b>Test-Fish<br/>Harvest</b> | <b>Sport Fish<br/>Harvest</b> | <b>Total<br/>Utilization</b> | <b>10-Year<br/>Average</b> |
|-------------|---------------------------------------|-----------------|------------------------------------------|-----------------|------------------------------|-------------------------------|------------------------------|----------------------------|
|             | <b>Annual</b>                         | <b>10yr Avg</b> | <b>Annual</b>                            | <b>10yr Avg</b> |                              |                               |                              |                            |
| 1997        | 17,026                                | 451,416         | 40,993                                   | 96,328          | 790                          | 86                            | 58,895                       | 555,038                    |
| 1998        | 207,809                               | 334,029         | 67,664                                   | 87,898          | 1,140                        | 291                           | 276,904                      | 428,850                    |
| 1999        | 23,006                                | 261,412         | 47,612                                   | 78,148          | 562                          | 180                           | 71,360                       | 346,147                    |
| 2000        | 11,570                                | 216,406         | 55,371                                   | 70,538          | 1,038                        | 26                            | 68,005                       | 293,374                    |
| 2001        | 1,272                                 | 173,353         | 51,117                                   | 66,019          | 1,743                        | 112                           | 54,244                       | 245,856                    |
| 2002        | 1,900                                 | 139,083         | 73,234                                   | 63,384          | 2,666                        | 53                            | 77,853                       | 207,629                    |
| 2003        | 2,764                                 | 135,026         | 42,291                                   | 61,441          | 1,713                        | 67                            | 46,835                       | 200,926                    |
| 2004        | 20,429                                | 109,957         | 52,374 <sup>g</sup>                      | 58,984          | 1,810                        | 117                           | 74,730                       | 172,264                    |
| 2005        | 69,139                                | 56,279          | 46,777 <sup>g</sup>                      | 56,767          | 4,459                        | 608                           | 120,983                      | 115,107                    |
| 2006        | 44,070                                | 39,899          | <sup>h</sup>                             |                 | 3,547                        | <sup>h</sup>                  | <sup>h</sup>                 |                            |

10-yr Avg.

|             |         |        |       |     |         |
|-------------|---------|--------|-------|-----|---------|
| (1995–2004) | 109,957 | 58,984 | 3,180 | 144 | 172,264 |
|-------------|---------|--------|-------|-----|---------|

<sup>a</sup> Districts 1 and 2 only; no chum harvests were reported in District 3.

<sup>b</sup> Estimated subsistence harvest expanded from villages surveyed.

<sup>c</sup> Discrepancies in subsistence harvest numbers by area may be attributable changes in geographic area definitions over time.

<sup>d</sup> Includes small numbers of small Chinook, sockeye and coho salmon.

<sup>e</sup> Includes small numbers of sockeye.

<sup>f</sup> Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

<sup>g</sup> Preliminary estimate.

<sup>h</sup> Data not yet available.

**Appendix A3.**—Historical utilization of sockeye salmon in the Kuskokwim River.

| Year              | Commercial Harvest <sup>a</sup> |          | Subsistence Harvest <sup>b,c</sup> |          | Test-Fish<br>Harvest | Sport Fish<br>Harvest | Total<br>Utilization | 10-Year<br>Average |
|-------------------|---------------------------------|----------|------------------------------------|----------|----------------------|-----------------------|----------------------|--------------------|
|                   | Annual                          | 10yr Avg | Annual                             | 10yr Avg |                      |                       |                      |                    |
| 1960              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1961              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1962              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1963              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1964              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1965              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1966              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1967              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1968              |                                 |          |                                    |          |                      |                       |                      |                    |
| 1969              | 322                             | 322      |                                    |          |                      |                       | 322                  |                    |
| 1970              | 117                             | 220      |                                    |          |                      |                       | 117                  |                    |
| 1971              | 2,606                           | 1,015    |                                    |          |                      |                       | 2,606                |                    |
| 1972              | 102                             | 787      |                                    |          |                      |                       | 102                  |                    |
| 1973              | 369                             | 703      |                                    |          |                      |                       | 369                  |                    |
| 1974              | 136                             | 609      |                                    |          |                      |                       | 136                  |                    |
| 1975              | 23                              | 525      |                                    |          |                      |                       | 23                   |                    |
| 1976              | 2,971                           | 831      |                                    |          |                      |                       | 2,971                |                    |
| 1977              | 9,379                           | 1,781    |                                    |          |                      |                       | 9,379                |                    |
| 1978              | 733                             | 1,676    |                                    |          |                      |                       | 733                  |                    |
| 1979              | 1,054                           | 1,749    |                                    |          |                      |                       | 1,054                |                    |
| 1980              | 360                             | 1,773    |                                    |          |                      |                       | 360                  |                    |
| 1981              | 48,375                          | 6,350    |                                    |          |                      |                       | 48,375               |                    |
| 1982              | 33,154                          | 9,655    |                                    |          |                      |                       | 33,154               |                    |
| 1983              | 68,855                          | 16,504   |                                    |          |                      | 41                    | 68,896               | 16,508             |
| 1984              | 48,575                          | 21,348   |                                    |          |                      |                       | 48,575               | 21,352             |
| 1985              | 106,647                         | 32,010   |                                    |          |                      | 72                    | 106,719              | 32,022             |
| 1986              | 95,433                          | 41,257   |                                    |          |                      | 196                   | 95,629               | 41,287             |
| 1987              | 136,602                         | 53,979   |                                    |          |                      | 217                   | 136,819              | 54,031             |
| 1988 <sup>b</sup> | 92,025                          | 63,108   |                                    |          |                      | 291                   | 92,316               | 63,190             |
| 1989              | 42,747                          | 67,277   | 37,088                             |          |                      | 33                    | 79,868               | 71,071             |
| 1990              | 84,870                          | 75,728   | 39,659                             |          |                      | 61                    | 124,590              | 83,494             |
| 1991              | 108,946                         | 81,785   | 56,401                             |          |                      | 38                    | 165,385              | 95,195             |
| 1992              | 92,218                          | 87,692   | 34,159                             |          |                      | 131                   | 126,508              | 104,531            |
| 1993              | 27,008                          | 83,507   | 51,362                             |          |                      | 348                   | 78,718               | 105,513            |
| 1994              | 49,365                          | 83,586   | 39,280                             |          |                      | 359                   | 89,004               | 109,556            |
| 1995              | 92,500                          | 82,171   | 28,622                             |          |                      | 95                    | 121,217              | 111,005            |
| 1996              | 33,878                          | 76,016   | 35,037                             |          |                      | 315                   | 69,230               | 108,365            |

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**Appendix A3.**—Page 2 of 2.

| Year | Commercial Harvest <sup>a</sup> |          | Subsistence Harvest <sup>b,c</sup> |          | Test-Fish | Sport Fish          | Total               | 10-Year |
|------|---------------------------------|----------|------------------------------------|----------|-----------|---------------------|---------------------|---------|
|      | Annual                          | 10yr Avg | Annual                             | 10yr Avg | Harvest   | Harvest Utilization |                     | Average |
| 1997 | 21,989                          | 64,555   | 41,251                             |          |           | 423                 | 63,663              | 101,050 |
| 1998 | 60,906                          | 61,443   | 37,579                             | 40,044   |           | 178                 | 98,663              | 101,685 |
| 1999 | 16,976                          | 58,866   | 49,388                             | 41,274   |           | 54                  | 66,418              | 100,340 |
| 2000 | 4,130                           | 50,792   | 44,832                             | 41,791   |           | 46                  | 49,008              | 92,781  |
| 2001 | 84                              | 39,905   | 51,965                             | 41,347   | 510       | 231                 | 52,790              | 81,522  |
| 2002 | 84                              | 30,692   | 27,733                             | 40,705   | 228       | 26                  | 28,071              | 71,678  |
| 2003 | 282                             | 28,019   | 36,894                             | 39,258   | 646       | 140                 | 37,962              | 67,603  |
| 2004 | 9,748                           | 24,058   | 32,433 <sup>d</sup>                | 38,573   | 742       | 400                 | 43,323              | 63,034  |
| 2005 | 27,645                          | 17,572   | 34,129 <sup>d</sup>                | 39,124   | 1,062     | 792 <sup>e</sup>    | 63,628 <sup>e</sup> | 57,276  |
| 2006 | 12,618                          | 15,446   | <sup>e</sup>                       |          | 519       | <sup>e</sup>        | <sup>e</sup>        |         |

10-yr Avg.

|             |        |  |        |  |     |     |        |  |
|-------------|--------|--|--------|--|-----|-----|--------|--|
| (1995–2004) | 24,058 |  | 38,573 |  | 638 | 191 | 63,034 |  |
|-------------|--------|--|--------|--|-----|-----|--------|--|

<sup>a</sup> Estimated subsistence harvest expanded from villages surveyed.

<sup>b</sup> Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

<sup>c</sup> Discrepancies in subsistence harvest numbers by area may be attributable changes in geographic area definitions over time.

<sup>d</sup> Preliminary estimate.

<sup>e</sup> Data not yet available.

**Appendix A4.**—Historical utilization of coho salmon in the Kuskokwim River.

| Year              | Commercial Harvest <sup>a</sup> |          | Subsistence Harvest <sup>b,c</sup> |          | Test-Fish | Sport Fish | Total       | 10-Year |
|-------------------|---------------------------------|----------|------------------------------------|----------|-----------|------------|-------------|---------|
|                   | Annual                          | 10yr Avg | Annual                             | 10yr Avg | Harvest   | Harvest    | Utilization | Average |
| 1960              | 2,498                           |          |                                    |          |           |            |             |         |
| 1961              | 5,044                           |          |                                    |          |           |            |             |         |
| 1962              | 12,432                          |          |                                    |          |           |            |             |         |
| 1963              | 15,660                          |          |                                    |          |           |            |             |         |
| 1964              | 28,613                          |          |                                    |          |           |            |             |         |
| 1965              | 12,191                          |          |                                    |          |           |            |             |         |
| 1966              | 22,985                          |          |                                    |          |           |            |             |         |
| 1967              | 56,313                          |          |                                    |          |           |            |             |         |
| 1968              | 127,306                         |          |                                    |          |           |            |             |         |
| 1969              | 83,765                          | 36,681   |                                    |          |           |            |             |         |
| 1970              | 38,601                          | 40,291   |                                    |          |           |            |             |         |
| 1971              | 5,253                           | 40,312   |                                    |          |           |            |             |         |
| 1972              | 22,579                          | 41,327   |                                    |          |           |            |             |         |
| 1973              | 130,876                         | 52,848   |                                    |          |           |            |             |         |
| 1974              | 147,269                         | 64,714   |                                    |          |           |            |             |         |
| 1975              | 81,945                          | 71,689   |                                    |          |           |            |             |         |
| 1976              | 88,501                          | 78,241   |                                    |          |           |            |             |         |
| 1977              | 241,364                         | 96,746   |                                    |          |           |            |             |         |
| 1978              | 213,393                         | 105,355  |                                    |          |           |            |             |         |
| 1979              | 219,060                         | 118,884  |                                    |          |           |            |             |         |
| 1980              | 222,012                         | 137,225  |                                    |          |           |            |             |         |
| 1981              | 211,251                         | 157,825  |                                    |          |           |            |             |         |
| 1982              | 447,117                         | 200,279  |                                    |          |           |            |             |         |
| 1983              | 196,287                         | 206,820  |                                    |          |           | 1,375      | 197,662     |         |
| 1984              | 623,447                         | 254,438  |                                    |          |           | 1,442      | 624,889     |         |
| 1985              | 335,606                         | 279,804  |                                    |          |           | 136        | 335,742     |         |
| 1986              | 659,988                         | 336,953  |                                    |          |           | 1,222      | 661,210     |         |
| 1987              | 399,467                         | 352,763  |                                    |          |           | 1,767      | 401,234     |         |
| 1988 <sup>b</sup> | 524,296                         | 383,853  |                                    |          |           | 927        | 525,223     |         |
| 1989              | 479,856                         | 409,933  | 57,846                             |          |           | 2,459      | 540,161     |         |
| 1990              | 410,332                         | 428,765  | 50,708                             |          |           | 581        | 461,621     |         |
| 1991              | 500,935                         | 457,733  | 55,620                             |          |           | 1,003      | 557,558     |         |
| 1992              | 666,170                         | 479,638  | 44,494                             |          |           | 1,692      | 712,356     |         |
| 1993              | 610,739                         | 521,084  | 35,295                             |          |           | 980        | 647,014     |         |
| 1994              | 724,689                         | 531,208  | 36,504                             |          |           | 1,925      | 763,118     |         |
| 1995              | 471,461                         | 544,793  | 39,165                             |          |           | 1,497      | 512,123     |         |
| 1996              | 937,299                         | 572,524  | 34,699                             |          |           | 3,423      | 975,421     |         |

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**Appendix A4.**—Page 2 of 2.

| Year | Commercial Harvest <sup>a</sup> |          | Subsistence Harvest <sup>b,c</sup> |          | Test-Fish           | Sport Fish          | Total                | 10-Year |
|------|---------------------------------|----------|------------------------------------|----------|---------------------|---------------------|----------------------|---------|
|      | Annual                          | 10yr Avg | Annual                             | 10yr Avg | Harvest             | Harvest Utilization |                      | Average |
| 1997 | 130,803                         | 545,658  | 30,717                             |          | 36,716 <sup>d</sup> | 2,408               | 200,643              | 589,524 |
| 1998 | 210,481                         | 514,277  | 27,240                             | 41,229   |                     | 2,419               | 240,140              | 561,015 |
| 1999 | 23,593                          | 468,650  | 27,753                             | 38,219   | 213 <sup>e</sup>    | 1,998               | 53,557               | 512,355 |
| 2000 | 261,379                         | 453,755  | 35,670                             | 36,716   | 2,828 <sup>e</sup>  | 1,689               | 301,566              | 496,350 |
| 2001 | 192,998                         | 422,961  | 31,686                             | 34,322   | 1,723 <sup>e</sup>  | 1,204               | 227,611              | 463,355 |
| 2002 | 83,463                          | 364,691  | 34,413                             | 33,314   | 2,484 <sup>e</sup>  | 2,030               | 122,390              | 404,358 |
| 2003 | 284,064                         | 332,023  | 38,791                             | 33,664   | 2,377 <sup>e</sup>  | 5,297               | 330,529              | 372,710 |
| 2004 | 433,809                         | 302,935  | 35,735 <sup>f</sup>                | 33,587   | 2,259 <sup>e</sup>  | 7,096               | 478,899              | 344,288 |
| 2005 | 142,319                         | 270,021  | 27,613 <sup>f</sup>                | 32,432   | 1,499 <sup>e</sup>  | 5,591 <sup>g</sup>  | 177,022 <sup>g</sup> | 310,778 |
| 2006 | 185,598                         | 194,851  |                                    |          |                     |                     |                      |         |

10-yr Avg.

|             |         |  |        |  |       |       |         |         |
|-------------|---------|--|--------|--|-------|-------|---------|---------|
| (1995–2004) | 302,935 |  | 33,587 |  | 6,943 | 2,389 | 372,710 | 485,667 |
|-------------|---------|--|--------|--|-------|-------|---------|---------|

<sup>a</sup> Estimated subsistence harvest expanded from villages surveyed.

<sup>b</sup> Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

<sup>c</sup> Discrepancies in subsistence harvest numbers by area may be attributable changes in geographic area definitions over time.

<sup>d</sup> Includes Bethel and Aniak test fisheries.

<sup>e</sup> Bethel test fishery only.

<sup>f</sup> Preliminary estimate.

<sup>g</sup> Data not yet available.



## **APPENDIX B. EXAMPLE OF SURVEY INSTRUMENT**

## Appendix B1.–Example of Kuskokwim River subsistence salmon fishing survey form.

Family Name: Lastname Firstname Community Fishcamp Location

Date family started salmon fishing this year (month, day ) Primary Subsistence Salmon Fishing Areas

What are your family's salmon harvest goals this year ? (number of salmon) King \_\_\_\_\_, Chum \_\_\_\_\_, Sockeye \_\_\_\_\_,  
Chinook " Red "

|                   |                | Salmon Fishing Gear<br>Used This Week |            |               |                 |             |               | Compared with this time in a "NORMAL" year,<br>how were catch rates for salmon this week? |                     |      |              |                     |      |                |                     |      | Does the salmon run appear to be running early, late, or<br>normal? |        |      |             |        |      |                |        |      |
|-------------------|----------------|---------------------------------------|------------|---------------|-----------------|-------------|---------------|-------------------------------------------------------------------------------------------|---------------------|------|--------------|---------------------|------|----------------|---------------------|------|---------------------------------------------------------------------|--------|------|-------------|--------|------|----------------|--------|------|
|                   |                | Net Type                              |            | Mesh ?        |                 |             |               | King Salmon                                                                               |                     |      | Chum Salmon  |                     |      | Sockeye Salmon |                     |      | King Salmon                                                         |        |      | Chum Salmon |        |      | Sockeye Salmon |        |      |
| Staff<br>initials | Week<br>Ending | Drift<br>Net                          | Set<br>Net | 6" or<br>Less | More<br>than 6" | Rod<br>Reel | Fish<br>Wheel | Very<br>Good                                                                              | <u>OK</u><br>Normal | Poor | Very<br>Good | <u>OK</u><br>Normal | Poor | Very<br>Good   | <u>OK</u><br>Normal | Poor | Early                                                               | Normal | Late | Early       | Normal | Late | Early          | Normal | Late |
|                   | 28-May         |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |
|                   | 4-Jun          |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |
|                   | 11-Jun         |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |
|                   | 18-Jun         |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |
|                   | 25-Jun         |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |
|                   | 2-Jul          |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |
|                   | 9-Jul          |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |
|                   | 16-Jul         |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |
|                   | 31-Jul         |                                       |            |               |                 |             |               |                                                                                           |                     |      |              |                     |      |                |                     |      |                                                                     |        |      |             |        |      |                |        |      |

### Comments

| Staff<br>initials | Week<br>Ending | Few fish ?<br>Size of Fish ?<br>Drying conditions? | Lot of fish ?<br>Fish look healthy ?<br>Fishing in more places/areas than usual | Weather affecting fishing?<br>Fishing harder this year ? | Water levels?<br>Fishing harder this year ? |
|-------------------|----------------|----------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------|
|                   | 28-May         |                                                    |                                                                                 |                                                          |                                             |
|                   | 4-Jun          |                                                    |                                                                                 |                                                          |                                             |
|                   | 11-Jun         |                                                    |                                                                                 |                                                          |                                             |
|                   | 18-Jun         |                                                    |                                                                                 |                                                          |                                             |
|                   | 25-Jun         |                                                    |                                                                                 |                                                          |                                             |
|                   | 2-Jul          |                                                    |                                                                                 |                                                          |                                             |
|                   | 9-Jul          |                                                    |                                                                                 |                                                          |                                             |
|                   | 16-Jul         |                                                    |                                                                                 |                                                          |                                             |
|                   | 31-Jul         |                                                    |                                                                                 |                                                          |                                             |

Were your family's salmon harvest goals achieved ? Kings \_\_\_\_\_, Chum \_\_\_\_\_, Sockeye \_\_\_\_\_.

When did your family stop subsistence fishing for: King Salmon \_\_\_\_\_,  
(month, day ) Chum Salmon \_\_\_\_\_,  
(month, day ) Sockeye Salmon \_\_\_\_\_,  
(month, day )

**APPENDIX C. KUSKOKWIM RIVER INSEASON SUBSISTENCE  
SALMON CATCH MONITORING WEEKLY REPORTS**

**Fishing ending the week of June 3, 2006.**

| Families Surveyed | Families Not Fishing | Using Only Driftnets | Using Only Setnets | Using Both Drift & Setnets | Rod and Reel | Gillnets more than 6" mesh Only | Gillnets less than 6" mesh Only | Using Both more/less mesh |
|-------------------|----------------------|----------------------|--------------------|----------------------------|--------------|---------------------------------|---------------------------------|---------------------------|
| 22                | 22                   | 0                    | 0                  | 0                          | 0            | 0                               | 0                               | 0                         |

**Compared with this time in a normal year, how are catch rates for salmon this week?**

| Chinook   |        |      | Chum      |        |      | Sockeye   |        |      |
|-----------|--------|------|-----------|--------|------|-----------|--------|------|
| Very Good | Normal | Poor | Very Good | Normal | Poor | Very Good | Normal | Poor |
| 0         | 0      | 0    | 0         | 0      | 0    | 0         | 0      | 0    |

**Does the salmon run appear to be running early, late, or normal?**

| Chinook |        |      | Chum  |        |      | Sockeye |        |      |
|---------|--------|------|-------|--------|------|---------|--------|------|
| Early   | Normal | Late | Early | Normal | Late | Early   | Normal | Late |
| 0       | 0      | 22   | 0     | 0      | 0    | 0       | 0      | 0    |

**Chinook:** Out of the 54 camps that are regularly visited on our survey list, 22 camps were available for contact reporting that they were getting ready to start their harvests and waiting on the return of the first Chinook. No families reported fishing as very good. No families reported fishing as normal. No families reported fishing as poor. As for comments about the return so far, it is still early and due to the late breakup the water level is still high and the salmon have not started running yet. There were a couple reports passed on by word of mouth that early fishermen have already caught their first Chinook of the year in their setnets. A couple camps commented on the water level and the first run of the year, reporting that the kings will be swimming deep and drifting might not be as successful as fishing with a setnet.

**Chum:** Fishermen felt it is still too early in the season to offer an assessment on the chum run for this weeks opening.

**Sockeye:** Fishermen felt it is still too early in the season to offer an assessment on the sockeye run for this weeks opening.

**Comments:** Efforts this week have been pushed into recruiting old and new ASL samplers as families prepare their camps for their harvests for the coming season. Kits have been hard to hang on to this year as for the prices in gasoline are on the rise more families choose to participate and understand what the data is used for. A busy week for fishermen and their families is on its way as for a busy week is in store for our surveys and distributing ASL kits in pursuit of data in the early run of the first kings. Observing the fishing activity on the river this weekend, there were 6 setnets out in our survey area.

**Fishing ending the week of June 10, 2006.**

| Families Surveyed | Families Not Fishing | Using Only Driftnets | Using Only Setnets | Using Both Drift & Setnets | Rod and Reel | Gillnets more than 6" mesh Only | Gillnets less than 6" mesh Only | Using Both more/less mesh |
|-------------------|----------------------|----------------------|--------------------|----------------------------|--------------|---------------------------------|---------------------------------|---------------------------|
| 32                | 13                   | 14                   | 4                  | 1                          | 0            | 18                              | 1                               | 0                         |

**Compared with this time in a normal year, how are catch rates for salmon this week?**

| Chinook   |        |      | Chum      |        |      | Sockeye   |        |      |
|-----------|--------|------|-----------|--------|------|-----------|--------|------|
| Very Good | Normal | Poor | Very Good | Normal | Poor | Very Good | Normal | Poor |
| 6         | 13     | 0    | 0         | 0      | 0    | 0         | 0      | 0    |

**Does the salmon run appear to be running early, late, or normal?**

| Chinook |        |      | Chum  |        |      | Sockeye |        |      |
|---------|--------|------|-------|--------|------|---------|--------|------|
| Early   | Normal | Late | Early | Normal | Late | Early   | Normal | Late |
| 0       | 8      | 11   | 0     | 0      | 0    | 0       | 0      | 0    |

**Chinook:** As expected by fishermen last week, the Chinook have picked up during this weeks opening. 6 families reported the fishing as very good. 13 families reported the fishing as normal. No families reported the fishing as poor. 11 fishermen reported that due to the high level and lower temperature of the water this spring, the Chinook are swimming deep and few and far between making drifting not so successful this early in the season as previous years. Five fishermen that target the first of the run reported that due to the water levels they will be fishing with their setnets this year due to the sporadic catches of their drifts so far.

**Chum:** Fishermen felt it is still too early in the season to offer an assessment on the chum run for this weeks opening. Most fishermen surveyed are still using large mesh Chinook gear and report chum catches as only an occasional 1 or 2 fish. One fisherman reported using less than 6" gear and commented that the chums seem to be more plentiful then in comparison to this week in 2005.

**Sockeye:** Fishermen felt it is still too early in the season to offer an assessment on the sockeye run for this weeks opening.

**Comments:** Of the 32 families contacted, 13 families reported they had not fished this season and were still preparing camp and waiting for the peak of the run to arrive (expected during the coming week) before going out, to make the best use of limited time available. 11 other families on the survey route list were not yet available for interviewing and it is anticipated that most (if not all) of them are probably following the same pattern as the 13 that reported not fishing yet.

Nineteen families reported fishing during this weeks opening. Fourteen families reported using only drift nets. Four families reported using only setnets. One family reported using both drift and setnets and 18 families reported using only gillnets with more than 6" mesh. One family reported using only gillnets with less than 6" mesh. No families reported using both mesh sizes. Fishermen also commented that the early Chinook are small this year as in the start of 2005's season; and in catches this week noted that a greater number of small jack salmon were seen.

**Fishing ending the week of June 17, 2006.**

| Families Surveyed | Families Not Fishing | Using Only Driftnets | Using Only Setnets | Using Both Drift & Setnets | Rod and Reel | Gillnets more than 6" mesh Only | Gillnets less than 6" mesh Only | Using Both more/less mesh |
|-------------------|----------------------|----------------------|--------------------|----------------------------|--------------|---------------------------------|---------------------------------|---------------------------|
| 36                | 6                    | 25                   | 0                  | 5                          | 0            | 24                              | 1                               | 5                         |

**Compared with this time in a normal year, how are catch rates for salmon this week?**

| Chinook   |        |      | Chum      |        |      | Sockeye   |        |      |
|-----------|--------|------|-----------|--------|------|-----------|--------|------|
| Very Good | Normal | Poor | Very Good | Normal | Poor | Very Good | Normal | Poor |
| 28        | 2      | 0    | 18        | 12     | 0    | 16        | 14     | 0    |

**Does the salmon run appear to be running early, late, or normal?**

| Chinook |        |      | Chum  |        |      | Sockeye |        |      |
|---------|--------|------|-------|--------|------|---------|--------|------|
| Early   | Normal | Late | Early | Normal | Late | Early   | Normal | Late |
| 0       | 10     | 20   | 22    | 8      | 0    | 11      | 19     | 0    |

**Chinook:** As expected by fishermen last week, the Chinook have picked up during this weeks opening. 28 families reported the fishing as very good. Two families reported the fishing as normal. No families reported the fishing as poor. Four families are all finished with their Chinook salmon harvests. Five families are finished with drying but are going to go out again for canning, and freezing. Twenty families reported the peak of the run coming a week late but plentiful in catch rates. Eight fishermen reported that the Chinook so far this year are larger on average than the previous few years.

**Chum:** Eighteen families reported the fishing as very good. Twelve families reported the fishing as normal. No families reported the fishing as poor. The majority of fishermen used larger mesh gear focusing on their Chinook catches this week. The 6 families that did use smaller gear reported many chums in the water this season. The 22 families reported the chums as early, while 8 families reported the run as normal.

**Sockeye:** Sixteen families reported the fishing as very good. Fourteen families reported the fishing as normal. No families reported the fishing as poor. The majority of fishermen used larger mesh gear focusing on their Chinook catches this week. Eleven families reported the sockeye as early, while 19 families reported the run as normal. Eight families reported that sockeye catches this year are better then last year around this week.

**Comments:** Of the 36 families contacted, the 6 families reporting they had not fished yet were still preparing camp or not ready to start yet this year. Four other families on the survey route list were not yet available for interviewing and 30 families reported fishing during this weeks opening. Twenty five families reported using only drift nets. No families reported using only setnets and 5 families reported using both drift and setnets. Twenty four families reported using only gillnets with more than 6" mesh. One family reported using only gillnets less than 6" mesh and 5 families reported using both larger and smaller mesh size gillnets.

**Fishing ending the week of June 24, 2006.**

| Families Surveyed | Families Not Fishing | Using Only Driftnets | Using Only Setnets | Using Both Drift & Setnets | Rod and Reel | Gillnets more than 6" mesh Only | Gillnets less than 6" mesh Only | Using Both more/less mesh |
|-------------------|----------------------|----------------------|--------------------|----------------------------|--------------|---------------------------------|---------------------------------|---------------------------|
| 48                | 5                    | 36                   | 4                  | 3                          | 0            | 28                              | 6                               | 9                         |

**Compared with this time in a normal year, how are catch rates for salmon this week?**

| Chinook   |        |      | Chum      |        |      | Sockeye   |        |      |
|-----------|--------|------|-----------|--------|------|-----------|--------|------|
| Very Good | Normal | Poor | Very Good | Normal | Poor | Very Good | Normal | Poor |
| 34        | 9      | 0    | 39        | 4      | 0    | 8         | 24     | 11   |

**Does the salmon run appear to be running early, late, or normal?**

| Chinook |        |      | Chum  |        |      | Sockeye |        |      |
|---------|--------|------|-------|--------|------|---------|--------|------|
| Early   | Normal | Late | Early | Normal | Late | Early   | Normal | Late |
| 0       | 13     | 10   | 0     | 43     | 0    | 0       | 43     | 0    |

**Chinook:** Chinook have continued running steady during this weeks opening. Thirty four families reported the fishing as very good and 9 families reported the fishing as normal. No families reported fishing as poor while 10 families predict the second run of Chinook to arrive next week and be larger on average in size. Three families have just started this week for their 2006 harvests and will be targeting their harvest goals next week. Twenty seven families plan on some small fishing effort next week for freezing and canning as their harvest needs for the season are nearing completion.

**Chum:** Thirty nine families reported the fishing as very good. Four families reported the fishing as normal. No families reported the fishing as poor. Seventeen families reported that there are many chums in the water. Eight families had no need to make the switch to smaller mesh reporting that there are higher numbers of larger chums this week.

**Sockeye:** Eight families reported the fishing as very good. Twenty four families reported fishing as normal and 11 families reported fishing as poor. Seventeen families are expecting the sockeye run to pick up next week and 11 families are planning on fishing next week to finish off their sockeye goals.

**Comments:** Of the 48 families contacted, there were 5 families not fishing this week. Four other families on the survey route list were not yet available for interviewing. Forty three families reported fishing during this weeks opening and 36 families reported using only drift nets. Four families reported using only setnets. Three families reported using both drift and setnets and 28 families reported using only gillnets with more than 6" mesh. Six families reported using only gillnets with less than 6" mesh. Nine families reported using both larger and smaller mesh size gillnets. As for the Chinook run timing, the run was considered later than normal in arriving this season. What most people observed was the Chinook were actually on schedule when compared to the date of the late ice break up.

**Fishing ending the week of July 1, 2006.**

| Families Surveyed | Families Not Fishing | Using Only Driftnets | Using Only Setnets | Using Both Drift & Setnets | Rod and Reel | Gillnets more than 6" mesh Only | Gillnets less than 6" mesh Only | Using Both more/less mesh |
|-------------------|----------------------|----------------------|--------------------|----------------------------|--------------|---------------------------------|---------------------------------|---------------------------|
| 46                | 32                   | 12                   | 1                  | 0                          | 1            | 8                               | 5                               | 0                         |

**Compared with this time in a normal year, how are catch rates for salmon this week?**

| Chinook   |        |      | Chum      |        |      | Sockeye   |        |      |
|-----------|--------|------|-----------|--------|------|-----------|--------|------|
| Very Good | Normal | Poor | Very Good | Normal | Poor | Very Good | Normal | Poor |
| 3         | 11     | 0    | 10        | 4      | 0    | 6         | 8      | 0    |

**Does the salmon run appear to be running early, late, or normal?**

| Chinook |        |      | Chum  |        |      | Sockeye |        |      |
|---------|--------|------|-------|--------|------|---------|--------|------|
| Early   | Normal | Late | Early | Normal | Late | Early   | Normal | Late |
| 0       | 28*    | 10   | 0     | 38     | 0    | 0       | 38     | 0    |

**Chinook:** Three families reported the fishing as very good and 11 families reported the fishing as normal. No families reported the fishing as poor. Out of the 46 interviewed, 40 were all done with Chinook. Overall everybody reported that the run of Chinook this year was good and there were no extra efforts made to reach their harvests goals, the weather was good for drying, and overall everybody is satisfied with the season.

**Chum:** Ten families reported the fishing as very good and 4 families reported the fishing as normal. No families reported the fishing as poor. The chums are still running strong and 5 families reported that the chums are showing coloration signs of spawning. Everybody on our survey list are all done with their chum harvests, with the majority of families commenting on there being too many chums by catch then previous years.

**Sockeye:** Six families report the fishing as very good and 8 families report the fishing as normal. No families reported the fishing as poor. Reported this week was the expected peak of sockeye passing as predicted by the 17 families last week. Eight families reported getting their harvests in one to two drifts. Forty families were all done with their sockeye harvests.

**Comments:** Of the 46 families contacted, 32 families reported not fishing this week. Fourteen families reported fishing during this weeks opening. Twelve families reported using only drift nets and 1 family reported using only a setnet. No families reported using both drift and setnet. One family reported using rod and reels. Eight families reported using only gillnets with more than 6" mesh. Five families reported using only gillnets with less than 6" mesh. No families reported using both larger and smaller mesh sizes. Overall, the summer harvests for Chinook, chum, and sockeye are finishing as families focus on putting away their finished dry fish and wait for the run of coho to arrive.

**Fishing ending the week of July 8, 2006.**

| Families Surveyed | Families Not Fishing | Using Only Driftnets | Using Only Setnets | Using Both Drift & Setnets | Rod and Reel | Gillnets more than 6" mesh Only | Gillnets less than 6" mesh Only | Using Both more/less mesh |
|-------------------|----------------------|----------------------|--------------------|----------------------------|--------------|---------------------------------|---------------------------------|---------------------------|
| 38                | 30                   | 7                    | 0                  | 0                          | 1            | 2                               | 5                               | 0                         |

**Compared with this time in a normal year, how are catch rates for salmon this week?**

| Chinook   |        |      | Chum      |        |      | Sockeye   |        |      |
|-----------|--------|------|-----------|--------|------|-----------|--------|------|
| Very Good | Normal | Poor | Very Good | Normal | Poor | Very Good | Normal | Poor |
| 0         | 8      | 0    | 2         | 6      | 0    | 3         | 5      | 0    |

**Does the salmon run appear to be running early, late, or normal?**

| Chinook |        |      | Chum  |        |      | Sockeye |        |      |
|---------|--------|------|-------|--------|------|---------|--------|------|
| Early   | Normal | Late | Early | Normal | Late | Early   | Normal | Late |
| 0       | 28*    | 10   | 0     | 38     | 0    | 0       | 38     | 0    |

**Chinook:** No families reported the fishing as very good and 8 families reported the fishing as normal. No families reported the fishing as poor. The Chinook run is slowing down, fishermen report catching 1 to 2 per drift by catch. All families surveyed are done with their Chinook harvests, concluding that this year's run was very good as no extra efforts were needed to reach harvest goals for this season. \*As mentioned in previous report, although Chinook arrived later than usual from previous years, their run timing was felt to be normal when compared to the actual later date of river break-up.

**Chum:** Two families reported the fishing as very good and 6 families reported the fishing as normal. No families reported the fishing as poor. The chums are still running strong as of this week, with higher numbers of chums showing coloration signs of spawning. Everybody on our survey list are all done with their chum harvests, with the majority of families commenting on there being too many chums by catch then previous years.

**Sockeye:** Three families report the fishing as very good and 5 families report the fishing as normal. No families reported the fishing as poor. The majority of families on our survey list are all finished with their sockeye harvests. Four families plan to go out one last time to get salmon for kippering.

**Comments:** Of the 38 families contacted, 30 families reported not fishing this week. Eight other families on the survey route list were not available for interviewing. Eight families reported fishing during this weeks opening. Seven families reported using only drift nets. No families reported using only setnets. No families reported using both drift and setnets. Two families reported using gillnets with more than 6" mesh. Five families reported using gillnets with less than 6" mesh. No families reported using both larger and smaller mesh size. One family reported using rod and reels. Overall, the summer harvests for Chinook, chum, and sockeye are over. Families are now focusing on putting away their finished dry fish and waiting for the run of coho to arrive.

**Fishing ending the week of July 15, 2006.**

| Families Surveyed | Families Not Fishing | Using Only Driftnets | Using Only Setnets | Using Both Drift & Setnets | Rod and Reel | Gillnets more than 6" mesh Only | Gillnets less than 6" mesh Only | Using Both more/less mesh |
|-------------------|----------------------|----------------------|--------------------|----------------------------|--------------|---------------------------------|---------------------------------|---------------------------|
| 26                | 21                   | 3                    | 0                  | 0                          | 2            | 1                               | 2                               | 0                         |

**Compared with this time in a normal year, how are catch rates for salmon this week?**

| Chinook   |        |      | Chum      |        |      | Sockeye   |        |      |
|-----------|--------|------|-----------|--------|------|-----------|--------|------|
| Very Good | Normal | Poor | Very Good | Normal | Poor | Very Good | Normal | Poor |
| 0         | 5      | 0    | 5         | 0      | 0    | 0         | 5      | 0    |

**Does the salmon run appear to be running early, late, or normal?**

| Chinook |        |      | Chum  |        |      | Sockeye |        |      |
|---------|--------|------|-------|--------|------|---------|--------|------|
| Early   | Normal | Late | Early | Normal | Late | Early   | Normal | Late |
| 0       | 28*    | 10   | 0     | 38     | 0    | 0       | 38     | 0    |

**Chinook:** No families reported the fishing as very good. Five families reported the fishing as normal. No families reported the fishing as poor. The 2 families that rod and reeled reported that there were many more Chinook passing the Y on the Kwethluk river than previous years. Everyone surveyed this season are done with their Chinook harvests, concluding that this years run was good and no extra efforts were needed to reach harvest goals for this season.

**Chum:** Five families reported the fishing as very good. No families reported the fishing as normal. No families reported the fishing as poor. The chums are slowing down as of this week, with higher numbers of chums showing coloration signs of spawning. The two families that rod and reeled reported that there were many more chums passing the Y on the Kwethluk river than previous years. Everybody on our survey list is all done with their chum harvests, with the majority of families commenting on there being too many chums bycatch.

**Sockeye:** No families report the fishing as very good. Five families report the fishing as normal. No families reported the fishing as poor. The sockeye are slowing down as the run is nearing its end. All the families on our survey list reported being finished with their sockeye harvests and are thankful for how well the season went this year.

**Comments:** Of the 26 families contacted, 21 families reported not fishing this week. Six other families on the survey route list were not available for interviewing. Five families reported fishing during this weeks opening. Three families reported using only drift nets. No families reported using only setnets.

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No families reported using both drift and setnet. One family reported using only a gillnet with more than 6” mesh and 2 families reported using only gillnets with less than 6” mesh. No families reported using both larger and smaller mesh size. Two families reported using rod and reels. All of the camps on our survey list reported being complete with their harvests for Chinook, chums and sockeye for drying, freezing, and canning. Everybody is happy with the season as harvest goals were achieved quickly and the salmon were plentiful. Three-fourths of the 54 families on our list are planning on fishing for coho when the run is here. Our efforts this week were focused on the collection of the final Chinook ASL/bio-samples from this season.



**APPENDIX D. EXAMPLE OF LOWER KUSKOKWIM RIVER  
SUBSISTENCE CATCH MONITORING INFORMATION  
PRESENTED AT KUSKOKWIM RIVER SALMON MANAGEMENT  
WORKING GROUP MEETINGS**

**Appendix D1.**—Example of Lower Kuskokwim River inseason subsistence catch monitoring historical information presented at Kuskokwim River Salmon Management Working Group Meetings, 2005.

| <b>Summary of Subsistence Salmon Information Collected by ONC Technicians <sup>a,b</sup></b> |               |                           |                |                    |                       |               |             |                    |               |             |                       |               |             |
|----------------------------------------------------------------------------------------------|---------------|---------------------------|----------------|--------------------|-----------------------|---------------|-------------|--------------------|---------------|-------------|-----------------------|---------------|-------------|
| <b>Year</b>                                                                                  | <b>Week</b>   | <b>Number of Families</b> |                |                    | <b>Chinook Salmon</b> |               |             | <b>Chum Salmon</b> |               |             | <b>Sockeye Salmon</b> |               |             |
|                                                                                              | <b>Ending</b> | <b>Interviewed</b>        | <b>Fishing</b> | <b>Not Fishing</b> | <b>Very Good</b>      | <b>Normal</b> | <b>Poor</b> | <b>Very Good</b>   | <b>Normal</b> | <b>Poor</b> | <b>Very Good</b>      | <b>Normal</b> | <b>Poor</b> |
| 2001                                                                                         | Jun 09        | 16                        | 16             | 0                  | 6                     | 6             | 4           |                    |               |             |                       |               |             |
|                                                                                              | Jun 16        | 39                        | ND             | ND                 | 18                    | 15            | 6           | 1                  | 19            | 15          | 13                    | 24            | 1           |
|                                                                                              | Jun 23        | 35                        | ND             | ND                 | 27                    | 7             | 1           | 0                  | 15            | 20          | 24                    | 11            | 0           |
|                                                                                              | Jun 30        | 40                        | 25             | 15                 | 8                     | 7             | 8           | 5                  | 12            | 8           | 19                    | 6             | 0           |
|                                                                                              | Jul 07        | 44                        | 7              | 37                 | 0                     | 1             | 5           | 4                  | 1             | 1           | 0                     | 5             | 2           |
|                                                                                              | Jul 14        | 44                        | 6              | 38                 | 0                     | 0             | 4           | 4                  | 2             | 0           | 0                     | 0             | 4           |
| 2002                                                                                         | Jun 08        | ND                        | ND             | ND                 | ND                    | ND            | ND          | ND                 | ND            | ND          | ND                    | ND            | ND          |
|                                                                                              | Jun 15        | 27                        | 23             | 4                  | 21                    | 2             | 0           | 3                  | 8             | 7           | 3                     | 11            | 3           |
|                                                                                              | Jun 22        | 33                        | 25             | 8                  | 17                    | 5             | 3           | 12                 | 9             | 3           | 2                     | 10            | 10          |
|                                                                                              | Jun 29        | 34                        | 22             | 12                 | 16                    | 6             | 0           | 21                 | 0             | 0           | 0                     | 3             | 16          |
|                                                                                              | Jul 06        | 34                        | 5              | 29                 | 0                     | 2             | 3           | 3                  | 2             | 0           | 0                     | 0             | 5           |
|                                                                                              | Jul 13        | 36                        | 10             | 26                 | 0                     | 3             | 5           | 8                  | 0             | 0           | 0                     | 0             | 8           |
| 2003                                                                                         | Jun 07        | 18                        | 9              | 9                  | 7                     | 2             | 0           |                    |               |             |                       |               |             |
|                                                                                              | Jun 14        | 33                        | 24             | 9                  | 22                    | 2             | 0           | 0                  | 2             | 0           | 0                     | 3             | 0           |
|                                                                                              | Jun 21        | 48                        | 32             | 14                 | 30                    | 2             | 1           | 1                  | 0             | 0           | 7                     | 18            | 3           |
|                                                                                              | Jun 28        | 50                        | 34             | 16                 | 30                    | 4             | 0           | 3                  | 9             | 13          | 27                    | 7             | 0           |
|                                                                                              | Jul 05        | 45                        | 21             | 24                 | 16                    | 5             | 0           | 8                  | 13            | 0           | 16                    | 5             | 0           |
|                                                                                              | Jul 12        | 46                        | 14             | 32                 | 0                     | 12            | 2           | 13                 | 1             | 0           | 0                     | 12            | 2           |
| 2004                                                                                         | Jun 05        | 31                        | 10             | 21                 | 6                     | 4             | 0           |                    |               |             |                       |               |             |
|                                                                                              | Jun 12        | 41                        | 37             | 4                  | 27                    | 8             | 2           |                    |               |             |                       |               |             |
|                                                                                              | Jun 19        | 35                        | 31             | 4                  | 23                    | 8             | 0           | 4                  | 27            | 0           | 4                     | 27            | 0           |
|                                                                                              | Jun 26        | 43                        | 31             | 12                 | 19                    | 12            | 0           | 24                 | 7             | 0           | 5                     | 22            | 4           |
|                                                                                              | Jul 03        | 44                        | 22             | 22                 | 3                     | 17            | 0           | 10                 | 10            | 0           | 0                     | 13            | 7           |
|                                                                                              | Jul 10        | 44                        | 13             | 31                 | 0                     | 10            | 0           | 8                  | 2             | 0           | 0                     | 4             | 6           |
| 2005                                                                                         | Jun 04        | 34                        | 12             | 22                 | 0                     | 12            | 0           |                    |               |             |                       |               |             |

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**Appendix D1.**—Page 2 of 2.

| Year | Week Ending | Number of Families |         |             | Chinook Salmon |        |      | Chum Salmon |        |      | Sockeye Salmon |        |      |
|------|-------------|--------------------|---------|-------------|----------------|--------|------|-------------|--------|------|----------------|--------|------|
|      |             | Interviewed        | Fishing | Not Fishing | Very Good      | Normal | Poor | Very Good   | Normal | Poor | Very Good      | Normal | Poor |
| 2005 | Jun 11      | 39                 | 26      | 13          | 20             | 6      | 0    |             |        |      |                |        |      |
|      | Jun 18      | 48                 | 42      | 6           | 36             | 6      | 0    | 14          | 28     | 0    | 31             | 11     | 0    |
|      | Jun 25      | 48                 | 34      | 14          | 25             | 5      | 0    | 19          | 15     | 0    | 28             | 6      | 0    |
|      | Jul 02      | 32                 | 3       | 29          | 3              | 0      | 0    | 2           | 1      | 0    | 3              | 0      | 0    |
|      | Jul 09      | 22                 | 2       | 20          | 0              | 2      | 0    | 1           | 1      | 0    | 1              | 1      | 0    |
| 2006 | Jun 03      | 22                 | 0       | 22          | 0              | 0      | 0    |             |        |      |                |        |      |
|      | Jun 10      | 32                 | 19      | 13          | 6              | 13     | 0    | 0           | 0      | 0    |                |        |      |
|      | Jun 17      | 36                 | 30      | 6           | 28             | 2      | 0    | 18          | 12     | 0    | 16             | 14     | 0    |
|      | Jun 24      | 48                 | 43      | 5           | 34             | 9      | 0    | 39          | 4      | 0    | 8              | 24     | 11   |
|      | Jul 01      | 46                 | 14      | 32          | 3              | 11     | 0    | 10          | 4      | 0    | 6              | 8      | 0    |
|      | Jul 08      | 38                 | 8       | 30          | 0              | 8      | 0    | 2           | 6      | 0    | 3              | 5      | 0    |
|      | Jul 15      | 26                 | 5       | 21          | 0              | 5      | 0    | 5           | 0      | 0    | 0              | 5      | 0    |

<sup>a</sup> Represents responses from the question “Compared with this time in a “Normal” year how were catch rates for salmon this week?”

<sup>b</sup> Only reports from the month of June and the first 2 weeks of July were used for comparison.



**APPENDIX E. KUSKOKWIM RIVER INSEASON SUBSISTENCE  
SALMON SUMMARY OF FISHING REPORTS**

**Appendix E1.**—Kuskokwim River subsistence summary report, summary of salmon fishing, 2001–2005.

| Summary of Subsistence Salmon Information Collected by ONC Technicians <sup>a</sup> |             |                    |         |             |                |        |      |             |        |      |                |        |      |             |        |      |
|-------------------------------------------------------------------------------------|-------------|--------------------|---------|-------------|----------------|--------|------|-------------|--------|------|----------------|--------|------|-------------|--------|------|
| Year                                                                                | Week Ending | Number of Families |         |             | Chinook Salmon |        |      | Chum Salmon |        |      | Sockeye Salmon |        |      | Coho Salmon |        |      |
|                                                                                     |             | Interviewed        | Fishing | Not Fishing | Very Good      | Normal | Poor | Very Good   | Normal | Poor | Very Good      | Normal | Poor | Very Good   | Normal | Poor |
| 2001                                                                                | Jun 09      | 16                 | 16      | 0           | 6              | 6      | 4    |             |        |      |                |        |      |             |        |      |
|                                                                                     | Jun 16      | 39                 | ND      | ND          | 18             | 15     | 6    | 1           | 19     | 15   | 13             | 24     | 1    |             |        |      |
|                                                                                     | Jun 23      | 35                 | ND      | ND          | 27             | 7      | 1    | 0           | 15     | 20   | 24             | 11     | 0    | 0           | 0      | 0    |
|                                                                                     | Jun 30      | 40                 | 25      | 15          | 8              | 7      | 8    | 5           | 12     | 8    | 19             | 6      | 0    | 0           | 0      | 0    |
|                                                                                     | Jul 07      | 44                 | 7       | 37          | 0              | 1      | 5    | 4           | 1      | 1    | 0              | 5      | 2    | 0           | 0      | 0    |
|                                                                                     | Jul 14      | 44                 | 6       | 38          | 0              | 0      | 4    | 4           | 2      | 0    | 0              | 0      | 4    | 0           | 0      | 0    |
|                                                                                     | Jul 21      | 44                 | 0       | 44          | ND             | ND     | ND   | ND          | ND     | ND   | ND             | ND     | ND   | ND          | ND     | ND   |
|                                                                                     | Jul 28      | 44                 | 9       | 35          | 0              | 0      | 0    | 1           | 7      | 0    | 0              | 0      | 0    | 0           | 7      | 1    |
|                                                                                     | Aug 04      | 42                 | 20      | 22          |                |        |      | 0           | 1      | 17   |                |        |      | 18          | 2      | 0    |
|                                                                                     | Aug 11      | 37                 | 3       | 34          |                |        |      | 0           | 0      | 0    |                |        |      | 2           | 1      | 0    |
|                                                                                     | Aug 18      | 37                 | 3       | 34          |                |        |      | 0           | 0      | 3    |                |        |      | 1           | 2      | 0    |
|                                                                                     | Aug 25      | 37                 | 3       | 34          |                |        |      | 0           | 0      | 3    |                |        |      | 3           | 0      | 0    |
| Total <sup>b</sup>                                                                  |             | 459                |         |             |                |        |      |             |        |      |                |        |      |             |        |      |
| Average                                                                             |             | 38                 | 9       | 29          | 8              | 5      | 4    | 2           | 6      | 7    | 9              | 8      | 1    | 3           | 1      | 0    |
| 2002                                                                                | Jun 08      | ND                 | ND      | ND          | ND             | ND     | ND   | ND          | ND     | ND   | ND             | ND     | ND   | ND          | ND     | ND   |
|                                                                                     | Jun 15      | 27                 | 23      | 4           | 21             | 2      | 0    | 3           | 8      | 7    | 3              | 11     | 3    |             |        |      |
|                                                                                     | Jun 22      | 33                 | 25      | 8           | 17             | 5      | 3    | 12          | 9      | 3    | 2              | 10     | 10   |             |        |      |
|                                                                                     | Jun 29      | 34                 | 22      | 12          | 16             | 6      | 0    | 21          | 0      | 0    | 0              | 3      | 16   |             |        |      |
|                                                                                     | Jul 06      | 34                 | 5       | 29          | 0              | 2      | 3    | 3           | 2      | 0    | 0              | 0      | 5    |             |        |      |
|                                                                                     | Jul 13      | 36                 | 10      | 26          | 0              | 3      | 5    | 8           | 0      | 0    | 0              | 0      | 8    | 0           | 0      | 0    |
|                                                                                     | Jul 20      | 40                 | 9       | 31          | 0              | 9      | 0    | 1           | 7      | 1    | 0              | 0      | 9    | 0           | 0      | 0    |
|                                                                                     | Jul 27      | 35                 | 31      | 4           | 0              | 31     | 0    | 0           | 31     | 0    | 0              | 31     | 0    | 9           | 22     | 0    |
|                                                                                     | Aug 03      | 37                 | 13      | 24          | 0              | 0      | 0    | 0           | 10     | 2    | 0              | 0      | 0    | 9           | 4      | 0    |
|                                                                                     | Aug 10      | ND                 | ND      | ND          | ND             | ND     | ND   | ND          | ND     | ND   | ND             | ND     | ND   | ND          | ND     | ND   |
| Total <sup>b</sup>                                                                  |             | 276                |         |             |                |        |      |             |        |      |                |        |      |             |        |      |
| Average                                                                             |             | 35                 | 17      | 17          | 7              | 7      | 1    | 6           | 8      | 2    | 1              | 7      | 6    | 5           | 7      | 0    |
| 2003                                                                                | Jun 07      | 18                 | 9       | 9           | 7              | 2      | 0    |             |        |      |                |        |      |             |        |      |
|                                                                                     | Jun 14      | 33                 | 24      | 9           | 22             | 2      | 0    | 0           | 2      | 0    | 0              | 3      | 0    |             |        |      |

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| Year               | Week Ending | Number of Families |         | Chinook Salmon |           |        |      | Chum Salmon |        |      | Sockeye Salmon |        |      | Coho Salmon |        |      |
|--------------------|-------------|--------------------|---------|----------------|-----------|--------|------|-------------|--------|------|----------------|--------|------|-------------|--------|------|
|                    |             | Interviewed        | Fishing | Not Fishing    | Very Good | Normal | Poor | Very Good   | Normal | Poor | Very Good      | Normal | Poor | Very Good   | Normal | Poor |
| 2003               | Jun 21      | 48                 | 32      | 14             | 30        | 2      | 1    | 1           | 0      | 0    | 7              | 18     | 3    |             |        |      |
|                    | Jun 28      | 50                 | 34      | 16             | 30        | 4      | 0    | 3           | 9      | 13   | 27             | 7      | 0    |             |        |      |
|                    | Jul 05      | 45                 | 21      | 24             | 16        | 5      | 0    | 8           | 13     | 0    | 16             | 5      | 0    |             |        |      |
|                    | Jul 12      | 46                 | 14      | 32             | 0         | 12     | 2    | 13          | 1      | 0    | 0              | 12     | 2    |             |        |      |
|                    | Jul 19      | 48                 | 5       | 43             | 0         | 5      | 0    | 5           | 0      | 0    | 0              | 5      | 0    | 2           | 3      | 0    |
|                    | Jul 26      | 48                 | 7       | 41             | 0         | 7      | 0    | 4           | 3      | 0    | 0              | 7      | 0    | 6           | 1      | 0    |
|                    | Aug 09      | 49                 | 11      | 38             | 0         | 0      | 0    | 0           | 0      | 0    | 0              | 0      | 0    | 10          | 1      | 0    |
|                    | Aug 16      | 48                 | 10      | 38             | 0         | 0      | 0    | 0           | 0      | 0    | 0              | 0      | 0    | 9           | 1      | 0    |
| Total <sup>b</sup> |             | 433                |         |                |           |        |      |             |        |      |                |        |      |             |        |      |
| Average            |             | 43                 | 17      | 26             | 11        | 4      | 0    | 4           | 3      | 1    | 6              | 6      | 1    | 7           | 2      | 0    |
| 2004               | Jun 05      | 31                 | 10      | 21             | 6         | 4      | 0    |             |        |      |                |        |      |             |        |      |
|                    | Jun 12      | 41                 | 37      | 4              | 27        | 8      | 2    |             |        |      |                |        |      |             |        |      |
|                    | Jun 19      | 35                 | 31      | 4              | 23        | 8      | 0    | 4           | 27     | 0    | 4              | 27     | 0    |             |        |      |
|                    | Jun 26      | 43                 | 31      | 12             | 19        | 12     | 0    | 24          | 7      | 0    | 5              | 22     | 4    |             |        |      |
|                    | Jul 03      | 44                 | 22      | 22             | 3         | 17     | 0    | 10          | 10     | 0    | 0              | 13     | 7    |             |        |      |
|                    | Jul 10      | 44                 | 13      | 31             | 0         | 10     | 0    | 8           | 2      | 0    | 0              | 4      | 6    |             |        |      |
|                    | Jul 17      | 35                 | 6       | 29             | 0         | 6      | 0    | 0           | 6      | 0    | 0              | 6      | 0    | 0           | 6      | 0    |
|                    | Jul 24      | 46                 | 8       | 38             |           |        |      |             |        |      |                |        |      | 0           | 8      | 0    |
|                    | Jul 31      | 47                 | 7       | 40             |           |        |      |             |        |      |                |        |      | 7           | 0      | 0    |
|                    | Aug 07      | 58                 | 22      | 36             |           |        |      |             |        |      |                |        |      | 19          | 3      | 0    |
|                    | Aug 14      | 44                 | 16      | 28             |           |        |      |             |        |      |                |        |      | 16          | 0      | 0    |
|                    | Aug 21      | 52                 | 8       | 44             |           |        |      |             |        |      |                |        |      | 8           | 0      | 0    |
| Total <sup>b</sup> |             | 520                |         |                |           |        |      |             |        |      |                |        |      |             |        |      |
| Average            |             | 43                 | 18      | 26             | 11        | 9      | 0    | 9           | 10     | 0    | 2              | 14     | 3    | 8           | 3      | 0    |
| 2005               | Jun 04      | 34                 | 12      | 22             | 0         | 12     | 0    |             |        |      |                |        |      |             |        |      |
|                    | Jun 11      | 39                 | 26      | 13             | 20        | 6      | 0    |             |        |      |                |        |      |             |        |      |
|                    | Jun 18      | 48                 | 42      | 6              | 36        | 6      | 0    | 14          | 28     | 0    | 31             | 11     | 0    |             |        |      |
|                    | Jun 25      | 48                 | 34      | 14             | 25        | 5      | 0    | 19          | 15     | 0    | 28             | 6      | 0    |             |        |      |
|                    | Jul 02      | 32                 | 3       | 29             | 3         | 0      | 0    | 2           | 1      | 0    | 3              | 0      | 0    |             |        |      |

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| Year               | Week<br>Ending | Number of Families |         |             | Chinook Salmon |        |      | Chum Salmon |        |      | Sockeye Salmon |        |      | Coho Salmon |        |      |
|--------------------|----------------|--------------------|---------|-------------|----------------|--------|------|-------------|--------|------|----------------|--------|------|-------------|--------|------|
|                    |                | Interviewed        | Fishing | Not Fishing | Very Good      | Normal | Poor | Very Good   | Normal | Poor | Very Good      | Normal | Poor | Very Good   | Normal | Poor |
| 2005               | Jul 09         | 22                 | 2       | 20          | 0              | 2      | 0    | 1           | 1      | 0    | 1              | 1      | 0    |             |        |      |
| Total <sup>b</sup> |                | 223                |         |             |                |        |      |             |        |      |                |        |      |             |        |      |
| Average            |                | 37                 | 20      | 17          | 14             | 5      | 0    | 9           | 11     | 0    | 16             | 5      | 0    | ND          | ND     | ND   |
| 2006               | Jun 03         | 22                 | 0       | 22          | 0              | 0      | 0    |             |        |      |                |        |      |             |        |      |
|                    | Jun 10         | 32                 | 19      | 13          | 6              | 13     | 0    | 0           | 0      | 0    |                |        |      |             |        |      |
|                    | Jun 17         | 36                 | 30      | 6           | 28             | 2      | 0    | 18          | 12     | 0    | 16             | 14     | 0    |             |        |      |
|                    | Jun 24         | 48                 | 43      | 5           | 34             | 9      | 0    | 39          | 4      | 0    | 8              | 24     | 11   |             |        |      |
|                    | Jul 01         | 46                 | 14      | 32          | 3              | 11     | 0    | 10          | 4      | 0    | 6              | 8      | 0    |             |        |      |
|                    | Jul 08         | 38                 | 8       | 30          | 0              | 8      | 0    | 2           | 6      | 0    | 3              | 5      | 0    |             |        |      |
|                    | Jul 15         | 26                 | 5       | 21          | 0              | 5      | 0    | 5           | 0      | 0    | 0              | 5      | 0    |             |        |      |
| Total <sup>b</sup> |                | 248                |         |             |                |        |      |             |        |      |                |        |      |             |        |      |
| Average            |                | 35                 | 17      | 18          | 10             | 7      | 0    | 12          | 4      | 0    | 7              | 11     | 2    | ND          | ND     | ND   |

<sup>a</sup> Represents responses from the question “Compared with this time in a “Normal” year how were catch rates for salmon this week?”

<sup>b</sup> Represents the total number of interviews conducted during the survey year, most families were interviewed more than once.

**Appendix E2.**—Kuskokwim River subsistence salmon summary, quality of fishing report, 2001–2005.

**Summary of Subsistence Salmon Information Collected by ONC Technicians <sup>a</sup>**

| Year               | Week Ending | Number Interviewed | Fishing | Percent Fishing | % Describing Chinook fishing as |        |      | % Describing Chum fishing as |        |      | % Describing Sockeye fishing as |        |      | % Describing Coho fishing as |        |      |
|--------------------|-------------|--------------------|---------|-----------------|---------------------------------|--------|------|------------------------------|--------|------|---------------------------------|--------|------|------------------------------|--------|------|
|                    |             |                    |         |                 | Very Good                       | Normal | Poor | Very Good                    | Normal | Poor | Very Good                       | Normal | Poor | Very Good                    | Normal | Poor |
| 2001               | Jun 09      | 16                 | 16      | 100%            | 38%                             | 38%    | 25%  |                              |        |      |                                 |        |      |                              |        |      |
|                    | Jun 16      | 39                 | ND      | ND              | ND                              | ND     | ND   | ND                           | ND     | ND   | ND                              | ND     | ND   |                              |        |      |
|                    | Jun 23      | 35                 | ND      | ND              | ND                              | ND     | ND   | ND                           | ND     | ND   | ND                              | ND     | ND   | ND                           | ND     | ND   |
|                    | Jun 30      | 40                 | 25      | 63%             | 32%                             | 28%    | 32%  | 20%                          | 48%    | 32%  | 76%                             | 24%    | 0%   | 0%                           | 0%     | 0%   |
|                    | Jul 07      | 44                 | 7       | 16%             | 0%                              | 14%    | 71%  | 57%                          | 14%    | 14%  | 0%                              | 71%    | 29%  | 0%                           | 0%     | 0%   |
|                    | Jul 14      | 44                 | 6       | 14%             | 0%                              | 0%     | 67%  | 67%                          | 33%    | 0%   | 0%                              | 0%     | 67%  | 0%                           | 0%     | 0%   |
|                    | Jul 21      | 44                 | 0       | 0%              | ND                              | ND     | ND   | ND                           | ND     | ND   | ND                              | ND     | ND   | ND                           | ND     | ND   |
|                    | Jul 28      | 44                 | 9       | 20%             | 0%                              | 0%     | 0%   | 11%                          | 78%    | 0%   | 0%                              | 0%     | 0%   | 0%                           | 78%    | 11%  |
|                    | Aug 04      | 42                 | 20      | 48%             |                                 |        |      | 0%                           | 5%     | 85%  |                                 |        |      | 90%                          | 10%    | 0%   |
|                    | Aug 11      | 37                 | 3       | 8%              |                                 |        |      | 0%                           | 0%     | 0%   |                                 |        |      | 67%                          | 33%    | 0%   |
|                    | Aug 18      | 37                 | 3       | 8%              |                                 |        |      | 0%                           | 0%     | 100% |                                 |        |      | 33%                          | 67%    | 0%   |
|                    | Aug 25      | 37                 | 3       | 8%              |                                 |        |      | 0%                           | 0%     | 100% |                                 |        |      | 100%                         | 0%     | 0%   |
| Total <sup>b</sup> |             | 459                |         |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| Average            |             | 38                 | 9       |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| 2002               | Jun 08      | ND                 | ND      | ND              | ND                              | ND     | ND   | ND                           | ND     | ND   | ND                              | ND     | ND   | ND                           | ND     | ND   |
|                    | Jun 15      | 27                 | 23      | 85%             | 91%                             | 9%     | 0%   | 13%                          | 35%    | 30%  | 13%                             | 48%    | 13%  |                              |        |      |
|                    | Jun 22      | 33                 | 25      | 76%             | 68%                             | 20%    | 12%  | 48%                          | 36%    | 12%  | 8%                              | 40%    | 40%  |                              |        |      |
|                    | Jun 29      | 34                 | 22      | 65%             | 73%                             | 27%    | 0%   | 95%                          | 0%     | 0%   | 0%                              | 14%    | 73%  |                              |        |      |
|                    | Jul 06      | 34                 | 5       | 15%             | 0%                              | 40%    | 60%  | 60%                          | 40%    | 0%   | 0%                              | 0%     | 100% |                              |        |      |
|                    | Jul 13      | 36                 | 10      | 28%             | 0%                              | 30%    | 50%  | 80%                          | 0%     | 0%   | 0%                              | 0%     | 80%  | 0%                           | 0%     | 0%   |
|                    | Jul 20      | 40                 | 9       | 23%             | 0%                              | 100%   | 0%   | 11%                          | 78%    | 11%  | 0%                              | 0%     | 100% | 0%                           | 0%     | 0%   |
|                    | Jul 27      | 35                 | 31      | 89%             | 0%                              | 100%   | 0%   | 0%                           | 100%   | 0%   | 0%                              | 100%   | 0%   | 29%                          | 71%    | 0%   |
|                    | Aug 03      | 37                 | 13      | 35%             | 0%                              | 0%     | 0%   | 0%                           | 77%    | 15%  | 0%                              | 0%     | 0%   | 69%                          | 31%    | 0%   |
|                    | Aug 10      | ND                 | ND      | ND              | ND                              | ND     | ND   | ND                           | ND     | ND   | ND                              | ND     | ND   | ND                           | ND     | ND   |
| Total <sup>b</sup> |             | 276                |         |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| Average            |             | 35                 | 17      |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| 2003               | Jun 07      | 18                 | 9       | 50%             | 78%                             | 22%    | 0%   |                              |        |      |                                 |        |      |                              |        |      |
|                    | Jun 14      | 33                 | 24      | 73%             | 92%                             | 8%     | 0%   | 0%                           | 8%     | 0%   | 0%                              | 13%    | 0%   |                              |        |      |

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| Year               | Week Ending | Number Interviewed | Fishing | Percent Fishing | % Describing Chinook fishing as |        |      | % Describing Chum fishing as |        |      | % Describing Sockeye fishing as |        |      | % Describing Coho fishing as |        |      |
|--------------------|-------------|--------------------|---------|-----------------|---------------------------------|--------|------|------------------------------|--------|------|---------------------------------|--------|------|------------------------------|--------|------|
|                    |             |                    |         |                 | Very Good                       | Normal | Poor | Very Good                    | Normal | Poor | Very Good                       | Normal | Poor | Very Good                    | Normal | Poor |
| 2003               | Jun 21      | 48                 | 32      | 67%             | 94%                             | 6%     | 3%   | 3%                           | 0%     | 0%   | 22%                             | 56%    | 9%   |                              |        |      |
|                    | Jun 28      | 50                 | 34      | 68%             | 88%                             | 12%    | 0%   | 9%                           | 26%    | 38%  | 79%                             | 21%    | 0%   |                              |        |      |
|                    | Jul 05      | 45                 | 21      | 47%             | 76%                             | 24%    | 0%   | 38%                          | 62%    | 0%   | 76%                             | 24%    | 0%   |                              |        |      |
|                    | Jul 12      | 46                 | 14      | 30%             | 0%                              | 86%    | 14%  | 93%                          | 7%     | 0%   | 0%                              | 86%    | 14%  |                              |        |      |
|                    | Jul 19      | 48                 | 5       | 10%             | 0%                              | 100%   | 0%   | 100%                         | 0%     | 0%   | 0%                              | 100%   | 0%   | 40%                          | 60%    | 0%   |
|                    | Jul 26      | 48                 | 7       | 15%             | 0%                              | 100%   | 0%   | 57%                          | 43%    | 0%   | 0%                              | 100%   | 0%   | 86%                          | 14%    | 0%   |
|                    | Aug 09      | 49                 | 11      | 22%             | 0%                              | 0%     | 0%   | 0%                           | 0%     | 0%   | 0%                              | 0%     | 0%   | 91%                          | 9%     | 0%   |
|                    | Aug 16      | 48                 | 10      | 21%             | 0%                              | 0%     | 0%   | 0%                           | 0%     | 0%   | 0%                              | 0%     | 0%   | 90%                          | 10%    | 0%   |
| Total <sup>b</sup> |             | 433                |         |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| Average            |             | 43                 | 17      | 0               |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| 2004               | Jun 05      | 31                 | 10      | 32%             | 60%                             | 40%    | 0%   |                              |        |      |                                 |        |      |                              |        |      |
|                    | Jun 12      | 41                 | 37      | 90%             | 73%                             | 22%    | 5%   |                              |        |      |                                 |        |      |                              |        |      |
|                    | Jun 19      | 35                 | 31      | 89%             | 74%                             | 26%    | 0%   | 13%                          | 87%    | 0%   | 13%                             | 87%    | 0%   |                              |        |      |
|                    |             |                    |         |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
|                    | Jun 26      | 43                 | 31      | 72%             | 61%                             | 39%    | 0%   | 77%                          | 23%    | 0%   | 16%                             | 71%    | 13%  |                              |        |      |
|                    | Jul 03      | 44                 | 22      | 50%             | 14%                             | 77%    | 0%   | 45%                          | 45%    | 0%   | 0%                              | 59%    | 32%  |                              |        |      |
|                    | Jul 10      | 44                 | 13      | 30%             | 0%                              | 77%    | 0%   | 62%                          | 15%    | 0%   | 0%                              | 31%    | 46%  |                              |        |      |
|                    | Jul 17      | 35                 | 6       | 17%             | 0%                              | 100%   | 0%   | 0%                           | 100%   | 0%   | 0%                              | 100%   | 0%   | 0%                           | 100%   | 0%   |
|                    | Jul 24      | 46                 | 8       | 17%             |                                 |        |      |                              |        |      |                                 |        |      | 0%                           | 100%   | 0%   |
|                    | Jul 31      | 47                 | 7       | 15%             |                                 |        |      |                              |        |      |                                 |        |      | 0%                           | 100%   | 0%   |
|                    | Aug 07      | 58                 | 22      | 38%             |                                 |        |      |                              |        |      |                                 |        |      | 100%                         | 0%     | 0%   |
|                    | Aug 14      | 44                 | 16      | 36%             |                                 |        |      |                              |        |      |                                 |        |      | 86%                          | 14%    | 0%   |
|                    | Aug 21      | 52                 | 8       | 15%             |                                 |        |      |                              |        |      |                                 |        |      | 100%                         | 0%     | 0%   |
| Total <sup>b</sup> |             | 520                |         |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| Average            |             | 43                 | 18      | 0               |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| 2005               | Jun 04      | 34                 | 12      | 35%             | 0%                              | 100%   | 0%   |                              |        |      |                                 |        |      |                              |        |      |
|                    | Jun 11      | 39                 | 26      | 67%             | 77%                             | 23%    | 0%   |                              |        |      |                                 |        |      |                              |        |      |
|                    | Jun 18      | 48                 | 42      | 88%             | 86%                             | 14%    | 0%   | 33%                          | 67%    | 0%   | 74%                             | 26%    | 0%   |                              |        |      |
|                    | Jun 25      | 48                 | 34      | 71%             | 74%                             | 15%    | 0%   | 56%                          | 44%    | 0%   | 82%                             | 18%    | 0%   |                              |        |      |

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| Year               | Week Ending | Number Interviewed | Fishing | Percent Fishing | % Describing Chinook fishing as |        |      | % Describing Chum fishing as |        |      | % Describing Sockeye fishing as |        |      | % Describing Coho fishing as |        |      |
|--------------------|-------------|--------------------|---------|-----------------|---------------------------------|--------|------|------------------------------|--------|------|---------------------------------|--------|------|------------------------------|--------|------|
|                    |             |                    |         |                 | Very Good                       | Normal | Poor | Very Good                    | Normal | Poor | Very Good                       | Normal | Poor | Very Good                    | Normal | Poor |
| 2005               | Jul 02      | 32                 | 3       | 9%              | 100%                            | 0%     | 0%   | 67%                          | 33%    | 0%   | 100%                            | 0%     | 0%   |                              |        |      |
|                    | Jul 09      | 22                 | 2       | 9%              | 0%                              | 100%   | 0%   | 50%                          | 50%    | 0%   | 50%                             | 50%    | 0%   |                              |        |      |
| Total <sup>b</sup> |             | 223                |         |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| Average            |             | 37                 | 20      | 0               |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| 2006               | Jun 03      | 22                 | 0       | 0%              | 0%                              | 0%     | 0%   |                              |        |      |                                 |        |      |                              |        |      |
|                    | Jun 10      | 32                 | 19      | 59%             | 32%                             | 68%    | 0%   | 0%                           | 0%     | 0%   |                                 |        |      |                              |        |      |
|                    | Jun 17      | 36                 | 30      | 83%             | 93%                             | 7%     | 0%   | 60%                          | 40%    | 0%   | 53%                             | 47%    | 0%   |                              |        |      |
|                    | Jun 24      | 48                 | 43      | 90%             | 79%                             | 21%    | 0%   | 91%                          | 9%     | 0%   | 19%                             | 56%    | 25%  |                              |        |      |
|                    | Jul 01      | 46                 | 14      | 30%             | 21%                             | 79%    | 0%   | 71%                          | 29%    | 0%   | 43%                             | 57%    | 0%   |                              |        |      |
|                    | Jul 08      | 38                 | 8       | 21%             | 0%                              | 100%   | 0%   | 25%                          | 75%    | 0%   | 38%                             | 62%    | 0%   |                              |        |      |
|                    | Jul 15      | 26                 | 5       | 19%             | 0%                              | 100%   | 0%   | 100%                         | 0%     | 0%   | 0%                              | 100%   | 0%   |                              |        |      |
| Total <sup>b</sup> |             | 248                |         |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |
| Average            |             | 35                 | 17      |                 |                                 |        |      |                              |        |      |                                 |        |      |                              |        |      |

<sup>a</sup> Represents responses from the question “Compared with this time in a “Normal” year how were catch rates for salmon this week?”

<sup>b</sup> Represents the total number of interviews conducted during the survey year, most families were interviewed more than once.